Frameworx 12
Product Conformance Certification Report

Orga Systems
GOLD Release 2.4

February 2013

Table of Contents

List of Tables

List of Figures

1 Introduction

1.1 Executive Summary

This document provides details of Orga Systems's self-assessment and TM Forum's Conformance Assessment of **Orga Systems GOLD R2.4** product, against the following Frameworx 12 components:

- Business Process Framework Version 12
- Information Framework Version 12

The assessment included a review of:

- The methodology approach to process modeling against the TM Forum's Business Process Framework Release 12 according to the specific processes submitted in scope for the Assessment.
- Conformance to the Information Framework Release 12 Domains/Aggregate Business Entities according to the specific ABEs submitted in scope for the Assessment.

2 Product Functionality/Capability Overview

2.1 Orga Systems GOLD Release 2.4 – Product Overview

GOLD is a convergent real-time rating, charging and billing system for all network technologies, all types of services and for true convergent prepaid and postpaid payment methods.

The modular platform architecture makes GOLD a very versatile system both for adjunct rating uses cases and for end-to-end convergent billing solutions. It can either enhance existing billing systems or replace them as an independent single system.

The convergent real-time module of the GOLD System is the highly flexible, rule based, Convergent Rating Engine (CRE™). High performance rating functionalities of the CRE™ are essential for providing complex, innovative tariff and price models in combination with flexible payment methods. With its real-time capabilities, GOLD can control costs, avoid leakage and optimize revenue management processes while assuring accurate spending control and instant account information.

The Core Billing Framework (CBF) of GOLD consolidates all services used by a subscriber or a group of subscribers – regardless of the payment method – and charges them in one single bill. The CBF performs the billing in batch operations depending on a pre-defined business logic, which allows the creation of specific aggregation and accumulation schemes to realize the individual billing and discounting rules.

Orga Systems' Collections Processing Module (CPM) is an add-on software product module to GOLD to support the processing of debt collections. It monitors and controls the overdue receivables and offers a variety of measures to manage outstanding accounts exceeding tolerated grace periods and tolerated amounts.

CPM is fully integrated with GOLD in the areas of customer balance management, payment processing, and service provisioning.

The Collections Processing Module comes with two web-based graphical user interfaces: The Collections Configuration Desktop (CCD) is provided for the configuration and administration of the different collection scenarios in the system, and the Collections Agent Desktop (CAD) supports the daily tasks in a debt collection center.

3 Business Process Framework Assessment Overview

3.1 Mapping Technique Employed

Business Process Framework L3 descriptions are analyzed by looking for implied tasks. (This is similar to how process decomposition can use Semantic Analysis). Each Business Process Framework process is supported by descriptive text. In many cases, each process is aligned and mapped to appropriate company documentation references solution, methodology or modeling material.

The Business Process Framework L3 descriptions are analyzed by looking for implied tasks. Color coded text as highlighted below is used as part of the process mapping whereby highlighted text indicates the level of support for a Level 3 process implied task:

- GREEN is used to highlight key words or key statements that are fully supported
- YELLOW is used to highlight key words/key statements that are partially supported
- GREY is used to highlight key words/key statements that are not supported
- No highlighting is used for words/statements that are irrelevant, just for reference or needed to complete the sentence.

Manual and Automated Support
It is important to determine whether the implied task is supported by manual steps, automated steps, or a combination of both. In this document, “A”, “M”, or “AM” is used for each task to indicate that the step or steps is/are automated (A), manual (M), or both (AM).

***TM Forum Note 1**: When process mappings are presented against Level 4 processes, the mappings are provided against the text in the “Mandatory” field for the process. In the event of the Mandatory field not being used, the process mappings are in that case provided against the Level 4 Brief/Extended descriptions.*

***TM Forum Note 2**: Note that if a Level 3 process has not been decomposed to Level 4 processes in the Business Process Framework, in such cases the process mapping support is provided against the Level 4 process descriptions (Brief & Extended).*

3.2 Business Process Framework Level 2 Process Scope

The following figure represents the Business Process Framework Level 2 processes that were presented in scope for the assessment, and the textual callouts represent the components of the Orga Systems GOLD that were assessed and support the corresponding Business Process Framework processes according to the results in Chapter 6 Frameworx Conformance.

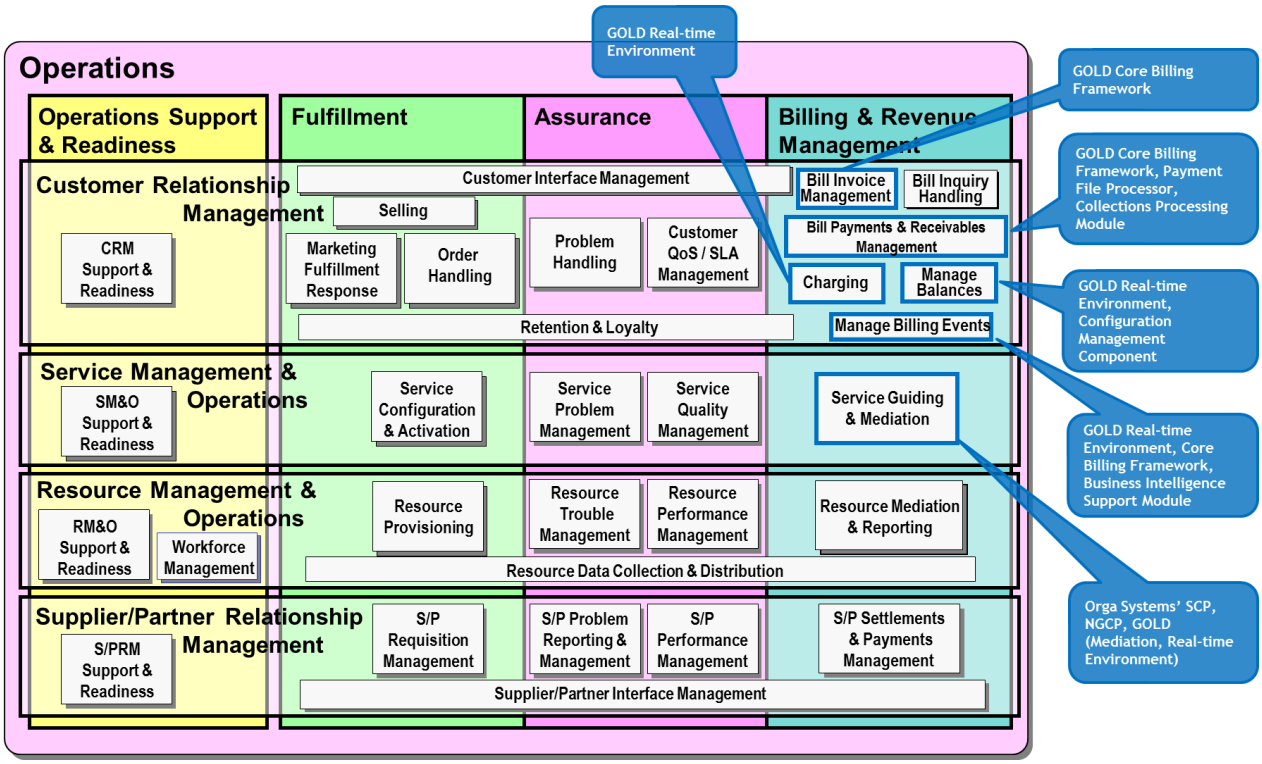

Figure 3.1 - Business Process Framework: Level 2 process coverage for GOLD R2.4 Assessment

The following diagram identifies the number of Level 3 processes that were submitted for assessment, for each Level 2 process that was submitted in scope for the Assessment.

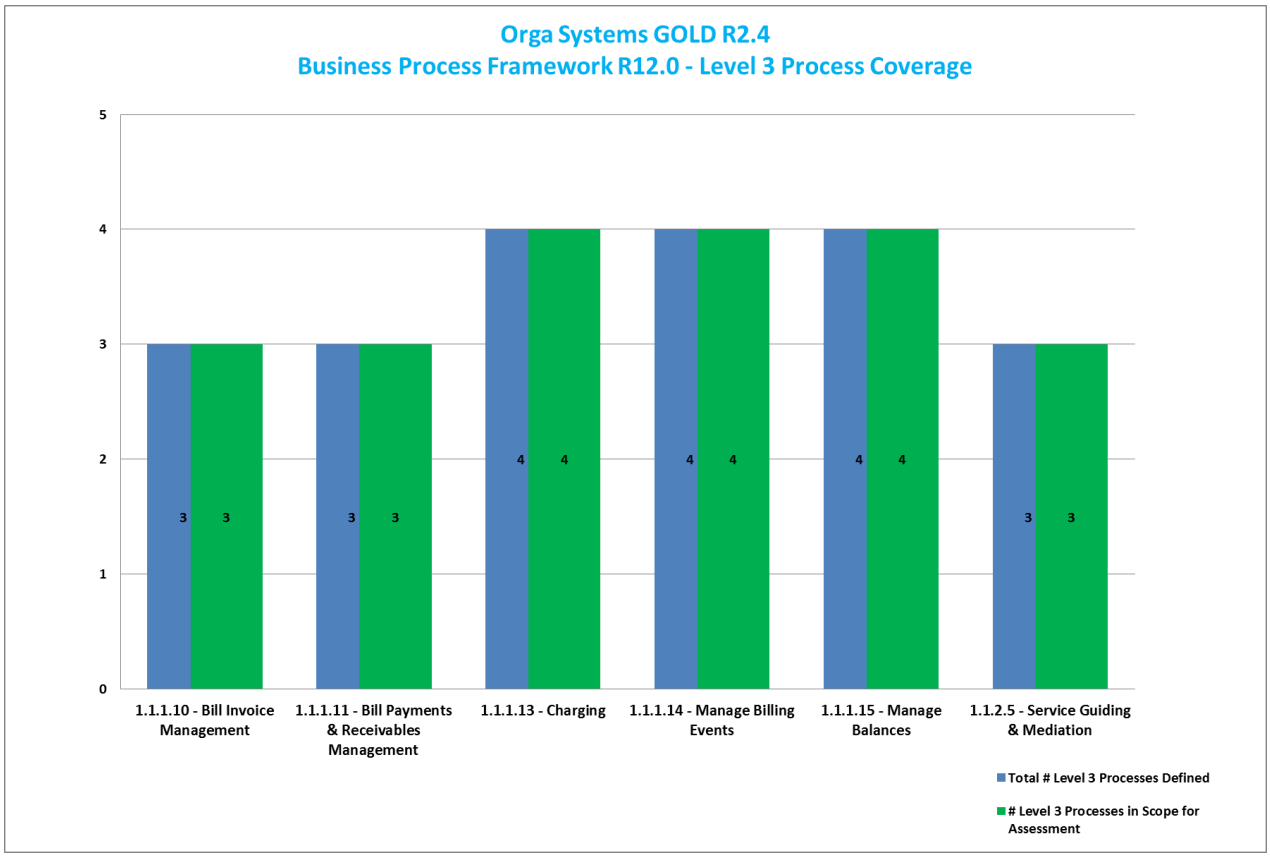

Figure 3.2 Level 3 process coverage for Orga Systems GOLD R2.4 Assessment

3.3 Product Scope

The diagram in Figure 3.3 represents the Orga Systems GOLD and how it is mapped to the Business Process Framework processes that were assessed as part of this Frameworx Conformance Assessment.

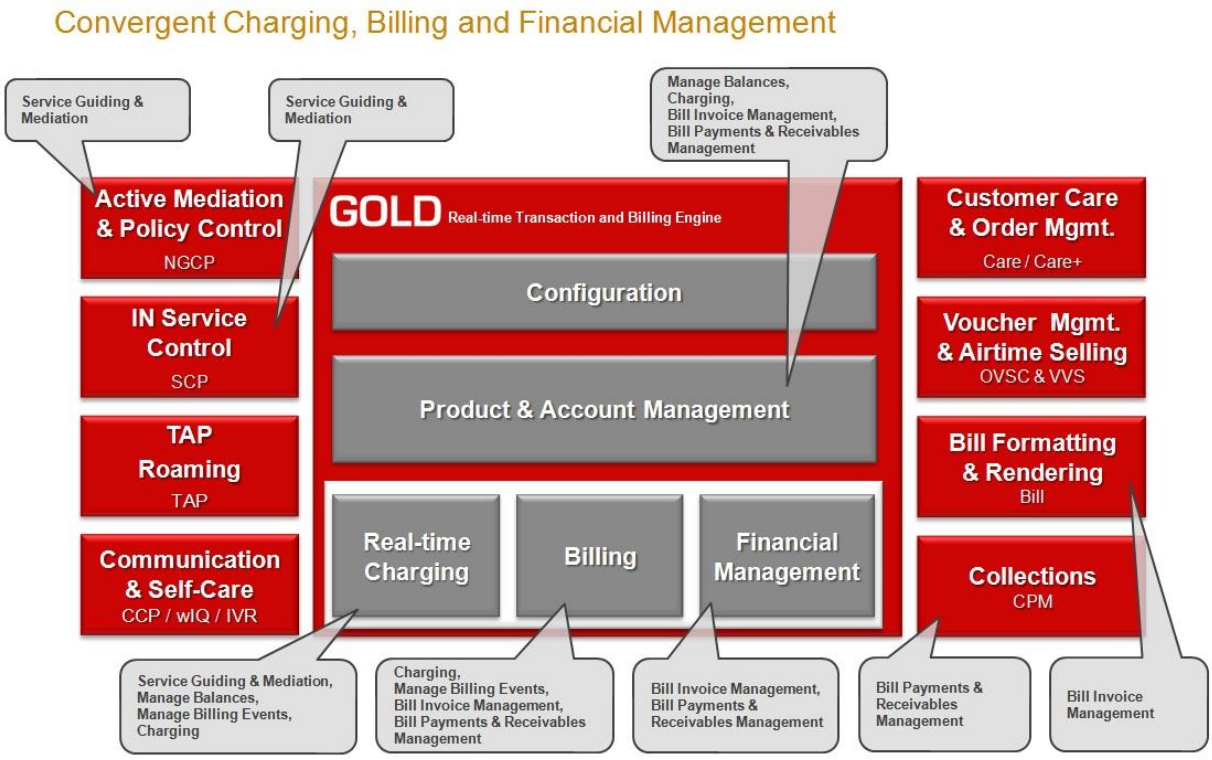

Figure 3.3 - GOLD R2.4 Product Footprint with Scope for eTOM Assessment

4 Business Process Framework – Process Mapping Descriptions

This section provides the Process Mapping output from Orga Systems' Self-Assessment which was reviewed by TM Forum Subject Matter Experts alongside supporting documentation for the Orga Systems GOLD.

4.1 Level 1: 1.1.1 - Customer Relationship Management

4.1.1 Level 2: 1.1.1.10 - Bill Invoice Management

4.1.1.1 Level 3: 1.1.1.10.1 - Apply Pricing, Discounting, Adjustments & Rebates

Table 4.1 Level 4 - 1.1.1.10.1.1 Obtain Billing Events

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.10.1.1 Obtain Billing Events
Brief Description Accept billing events that have been collected, translated, correlated, assembled, guided and service rated before determining the information would be applied to the customer's bill invoice(s). **Extended Description** The purpose of the Obtain Billing Events process is to ensure that all billing events for services delivered to the customer by the Service Provider are available for processing. This includes events that have been collected, translated, correlated, assembled, guided and service rated. **Explanatory** This includes events that have been collected, translated, correlated, assembled, guided and service rated. **Mandatory** The purpose of the Obtain Billing Events process is to ensure that all billing events for services delivered to the customer by the Service Provider are available for processing. **A** In Orga Systems' product GOLD the Core Billing Framework (CBF) imports regularly rated event reports provided in files by the Real-time Environment (RTE). The event-time transactions (ETTs) are validated, transformed, and finally assigned as unbilled Event Detail Records (EDRs) to the payment responsible accounts. The charge events are classified as follows: - Usage charges (USG) - Non-recurring charges (NRC) - Recurring charges (RC) If an input file contains events that cannot be imported (e.g. due to format errors) these

events stored in a separate file in the error directory. The file can be submitted again after corrections are applied. In case the number of erroneous events in a file reaches a configured limit the complete file is rejected.

(CBF Architecture, EIP - Event Import Processor)

(GOLD R2.4 PDE, 6.8 Event Detail Records, 7.5.1 Event import)

(GOLD R2.4 OMA, 2.4.3 Transaction Types, 2.4.5 Validation of Event Information, 2.4.6 Event Types in Detail)

The system can be configured to generate metrics on a daily basis for the import of usage events. The network operator can use these control totals as input for controlling or revenue assurance.

(GOLD R2.4 PDE, 7.21 Revenue Assurance Metrics, 7.21.4 Event Import Metrics)

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.2 Level 4 - 1.1.1.10.1.2 Apply Pricing, Discounting, Adjustments & Rebates to Customer Account

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.10.1.2 Apply Pricing, Discounting, Adjustments & Rebates to Customer Account
Brief Description Determine the customer account or customer specific pricing, charges, discounts, and taxation that should be delivered to the invoice(s) for the customer. **Extended Description** The purpose of Determine Customer Account process is to determine the customer account or customer specific pricing, charges, discounts, and taxation that should be delivered to the invoice(s) for the customer and ensure that the each cost item included in customer bill invoice(s) can correspond to a correct account through which customer will pay for the cost item. It ensures that the appropriate taxes, rebates (i.e. missed customer commitments) and credits are applied to the customer's bill invoice(s). A customer who may have multiple accounts can pay different cost item with different account. **Explanatory** It ensures that the appropriate taxes, rebates (i.e. missed customer commitments) and credits are

applied to the customer's bill invoice(s).

Mandatory

The purpose of Determine Customer Account process is to determine the customer account or customer specific pricing, charges, discounts, and taxation that should be delivered to the invoice(s) for the customer and ensure that the each cost item included in customer bill invoice(s) can correspond to a correct account through which customer will pay for the cost item. **A**

All financial transactions are assigned as Event Detail Records (EDRs) to a payment responsible account. These are charges (usage charges, recurring charges, non-recurring charges) as well as credits (payments, reloads, adjustments) and other reportable items (discounts, tax details). The bill run accumulates the unbilled EDRs into unformatted bills.

(GOLD R2.4 PDE, 6.1 Customers, 6.2 Accounts, 6.8 Event Detail Records)

A customer may have multiple postpaid accounts with payment responsibility for which invoices are generated.

(GOLD R2.4 GDE, 5.2 Basics about Customers and Accounts, 5.3 Customers, 5.4 Accounts)

Optional

A customer who may have multiple accounts can pay different cost item with different account.

Interactions

Not used for this process element

Table 4.3 Level 4 - 1.1.1.10.1.3 Apply Agreed Customer Bill Adjustment

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.10.1.3 Apply Agreed Customer Bill Adjustment
Brief Description Apply and review any adjustment agreed in the previous billing period and make these included to the bill invoice. **Extended Description** The purpose of the Apply Agreed Customer Bill Adjustment process is to ensure that any adjustments which have been agreed between customer and Service Provider are included in the customer bill invoice. In general, the adjustments are due to errors in customer bill invoices in previous billing periods or problems related to products and services delivered to the customer by the Service Provider or partners.

Explanatory

In general, the adjustments are due to errors in customer bill invoices in previous billing periods or problems related to products and services delivered to the customer by the Service Provider or partners.

Mandatory

The purpose of the Apply Agreed Customer Bill Adjustment process is to ensure that any adjustments which have been agreed between customer and Service Provider are included in the customer bill invoice. **AM**

An adjustment is used to change an original charge or credit after it has been processed and possibly billed.
Adjustments can be performed based on EDRs (charge-level or itemized adjustments) or based on invoices (invoice-level adjustments). The item with the adjusted amount is included in the next invoice.
For external business systems such as CRM or Customer Care the GOLD Standard interface provides a set of adjustment related services to add, approve, cancel and search adjustments.

(CBF Architecture, GOLD Standard IF, CBF Internal API Services)

(GOLD R2.4 PDE, 7.7 Adjustments, 3.1.1 GOLD Standard Interface)

Optional

Not used for this process element

Interactions

Not used for this process element

4.1.1.2 Level 3: 1.1.1.10.2 - Create Customer Bill Invoice

Table 4.4 Level 4 - 1.1.1.10.2.1 Render & Format Invoice

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.10.2.1 Render & Format Invoice
Brief Description Render and format the customer bill invoice. **Extended Description** This process provides formatting of invoices in different ways and to achieve different publishing

possibilities, and supports the creation of different invoice formats for different publication media. The process is further responsible for splitting and re-arranging invoices for customers (particularly customers with complex account structures) according to agreements made with these customers.

Explanatory

Not used for this process element

Mandatory

This process provides formatting of invoices in different ways and to achieve different publishing possibilities, and supports the creation of different invoice formats for different publication media.
AM

The Core Billing Framework (CBF) module of GOLD produces pre-formatted XML bill files. These files are completely configurable structured invoices, and can include all invoice structure elements, such as headers, footers, address fields, inserts/onserts for (marketing) messaging, grouping and summarizing of usage data, down to individual bill records. Bill files generated by cyclical bill runs as well as interim bills are stored in configurable directories in the file system. From these directories, an external bill formatting and dispatching system can pick up the bill files and perform further processing on them. This would include any publication media-specific rendering, feeding the physical bill production process, and bill archiving. A suitable partner application that is pre-integrated with GOLD is available.

Formatting of the XML bill output of GOLD is governed by the Interface Template Framework (ITF), which allows ITF Templates describing the target format to be specified for all CBF export processes, including the export of bill files through the Bill Extract Processor (BEP). Format is specified in an Interface Template Definition Language, which is expressed in XML. The Extract Editor Component (EEC) of the Administration and Configuration Cockpit (ACC) GUI supports the creation of ITF Templates.

The template and thus format used for a particular invoice can be assigned through Billing Profiles to customer segments, customers, and accounts. Assignment is inherited in the same order. Additionally ITF selection can be made specific for different bill dispatch method codes and bill format codes. This allows another possibility to provide different invoice formats for different publication media.

(GOLD R2.4 PDE, 7.5 Billing)

(GOLD R2.4 GDE, 6.1 Billing)

(GOLD R2.4 OMA, 3.3 Bill Generation, 3.4 Billing Components, 3.5 Billing Configuration, 4.3 ITF)

(GOLD R2.4 ITDL, 2 Overview)

(GOLD R2.4 EEC)

The process is further responsible for splitting and re-arranging invoices for customers (particularly customers with complex account structures) according to agreements made with these customers.

A

The objective of account-level invoicing reflecting any arbitrarily complex target account structure of a customer is embedded in GOLD's capabilities to model any account hierarchy in any required complexity. Invoices can be created at any level of the account hierarchy, and the format can be account-specific (see above).

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.5 Level 4 - 1.1.1.10.2.2 Deliver Electronic Invoice

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.10.2.2 Deliver Electronic Invoice
Brief Description Deliver the electronic copy of an invoice to customers. **Extended Description** The purpose of Deliver Electronic Invoice process is to deliver the electronic copy of an invoice to customers. The flow of this process can be viewed as an extension of the company's e-business strategy. In this case, the Service Provider would render an invoice electronically, via the Internet for example. **Explanatory** The flow of this process can be viewed as an extension of the company's e-business strategy. In this case, the Service Provider would render an invoice electronically, via the Internet for example. **Mandatory** The purpose of Deliver Electronic Invoice process is to deliver the electronic copy of an invoice to customers.**AM** This process is part of the operator's support processes either supported by internal applications or third party applications that integrate with GOLD. All of the required bill production data is processed and delivery by GOLD, so that these support processes can deliver their management and quality management requirements. The production and delivery of bill information is an automated part of the overall process.The Core Billing

Framework (CBF) module of GOLD produces pre-formatted XML bill files (see detailed description in 1.1.1.10.2.1). A pre-integrated partner application provides the rendering and archiving of bills. Electronic invoice delivery can either start with the XML bill files, or access the downstream bill archive provided by the partner application.

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.6 Level 4 - 1.1.1.10.2.3 Verify Invoice Quality

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.10.2.3 Verify Invoice Quality
Brief Description Verify invoice quality before distribution to the customer in electronic form and the process responsible for physical invoice production and distribution. **Extended Description** The purpose of Verify Invoice Quality process is to verify invoice quality prior to distribution to the customer in electronic form, or to the process responsible for physical invoice production and distribution. Verifying invoice quality is either a manual operation or an automatic behaviour. The process is responsible for ensuring the invoice format and content can meet customer requirements. When verifying invoice quality is failed, the process is also responsible for sending the invoice back to another process to reprocess. **Explanatory** Not used for this process element **Mandatory** The purpose of Verify Invoice Quality process is to verify invoice quality prior to distribution to the customer in electronic form, or to the process responsible for physical invoice production and distribution. Verifying invoice quality is either a manual operation or an automatic behaviour. The process is responsible for ensuring the invoice format and content can meet customer requirements. When verifying invoice quality is failed, the process is also responsible for sending the invoice back to another process to reprocess. **M** GOLD provides the capability to produce trial bills both for cyclical bill runs and for interim

bills (support for interim bills with GOLD R2.4.1). The bill run test mode mimics the production mode and populates the bill tables for testing purposes. This allows to verify the invoice content and quality prior to production and/or distribution. Corrections can then be applied before the bill production run or before electronic distribution.

(GOLD R2.4 PDE, 7.5.7 Trial Bills)

(GOLD R2.4 OMA, 5.7 Producing a Test Bill)

From release 2.4.1 on GOLD provides capabilities to roll back a bill run. This supports the Verify Invoice Quality process by allowing to stop and re-process a bill run, in case late-landing quality problems are detected.

(GOLD BCP Backout, **2 Description**)

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.7 Level 4 - 1.1.1.10.2.4 Manage Customer Invoice Archive

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.10.2.4 Manage Customer Invoice Archive
Brief Description Store the customer invoice for a period of time is to address regulation and/or internal requirements, during which they can be accessed to support any customer or regulator agency inquiries on bill invoices. **Extended Description** The purpose of Management Customer Invoice Archive process is to store the customer invoice for a period of time, to perform regulation and/or serve internal requirements, during which they can be accessed to support any customer or regulator agency inquiries on bill invoices, and the process is further responsible for archiving the customer invoices to historical customer invoice after a period of time according to Service Provider's management requirements. Furthermore the process is responsible for managing and maintaining archiving cycle. **Explanatory** Not used for this process element

Mandatory

The purpose of Management Customer Invoice Archive process is to store the customer invoice for a period of time, to perform regulation and/or serve internal requirements, during which they can be accessed to support any customer or regulator agency inquiries on bill invoices, and the process is further responsible for archiving the customer invoices to historical customer invoice after a period of time according to Service Provider's management requirements. Furthermore the process is responsible for managing and maintaining archiving cycle.**AM**

This process is part of the operator's support processes either supported by internal applications or third party applications that integrate with GOLD. All of the required bill production data is processed and delivery by GOLD, so that these support processes can deliver their management and quality management requirements. The production and delivery of bill information is an automated part of the overall process. Functionality is covered by a pre-integrated partner application. This solution provides bill rendering, feeding and controlling the physical bill production process, and bill archiving.

Optional

Not used for this process element

Interactions

Not used for this process element

4.1.1.3 Level 3: 1.1.1.10.3 - Produce & Distribute Bill

Table 4.8 Level; 4 1.1.1.10.3.1 Co-ordinate Billing Insertion

LEVEL 4 PROCESS MAPPING DETAILS **1.1.1.10.3.1 Co-ordinate Billing Insertion**
Brief Description Co-ordinate with promotional processes for any billing insertions to be included with the bill. **Extended Description** The purpose of Co-ordinate Billing Insertion process is to co-ordinate with promotional processes for any billing insertions to be included with the bill. This process is responsible for determining the content of insertion and the position of insertion in invoice. The insertion can be the service information provided by Service Provider, advertisements and recommendation of billing for customers. This process is also responsible for ensuring the billing insertion attracting the customer interests and not leading to customer complaints. This process can base customer feedbacks on the insertion to adjust or remove the insertion.

Explanatory

The purpose of Co-ordinate Billing Insertion process is to co-ordinate with promotional processes for any billing insertions to be included with the bill.

Mandatory

This process is responsible for determining the content of insertion and the position of insertion in invoice. The insertion can be the service information provided by Service Provider, advertisements and recommendation of billing for customers. This process is also responsible for ensuring the billing insertion attracting the customer interests and not leading to customer complaints. **AM**

Insertion messages as well as onsert content can be provided through the COM tables of the Core Billing Framework (CBF) database within the GOLD product. The messages used on or with a particular invoice can be assigned through Communication Profiles to customer segments, customers, and accounts. Assignment is inherited in the same order. Therefore a certain customer's or account's messaging can be individually (i.e. differing from the customer segment-wide settings) configured, if required – e.g. in order to react to a customer's or invoice recipient's complaint. The position of the insertions are governed by the Interface Template Framework (ITF), as described in 1.1.1.10.2.1.

(**GOLD R2.4 GDE, 5.7.3.1 Communication Profile**)

(**GOLD R2.4 Database, 3.13 COM_MSG_MASTER, 3.14 COM_PROFILE_MSG_ASSOC**)

Optional

This process can base customer feedbacks on the insertion to adjust or remove the insertion.

Interactions

Not used for this process element

Table 4.9 Level 4 - 1.1.1.10.3.2 Establish & Manage Bill Production Cycle

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.10.3.2 Establish & Manage Bill Production Cycle
Brief Description Establish and manage the physical bill production cycle. **Extended Description** The purpose of Establish & Manage Bill Production Cycle process is to establish and manage the

physical bill production cycle. This process is responsible for identifying the deadline of the customer requiring physical bill productions, time cycle for producing and distributing to ensure that the physical bill production can be received by the customer on time. This process is responsible for ensuring that physical bills are produced in time to be received by customers on time. This process takes production and distribution cycle timing into account when establishing bill production schedules.

Explanatory

The purpose of Establish & Manage Bill Production Cycle process is to establish and manage the physical bill production cycle.

Mandatory

This process is responsible for identifying the deadline of the customer requiring physical bill productions, time cycle for producing and distributing to ensure that the physical bill production can be received by the customer on time. This process is responsible for ensuring that physical bills are produced in time to be received by customers on time. This process takes production and distribution cycle timing into account when establishing bill production schedules. **A**

The management of the bill production cycle is supported by GOLD's Core Billing Framework (CBF) module by allowing to configure dates and timings per bill cycle: cutoff date, payment due date, statement date, and preparation delay.

Thereby the bill cycle configuration in CBF can be aligned with the run-time and processing of downstream systems, e.g. the pre-integrated partner application, which are responsible for controlling the physical bill production.

(GOLD R2.4 OMA, 3.5 Billing Configuration)

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.10 Level 4 - 1.1.1.10.3.3 Deliver Invoice Information

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.10.3.3 Deliver Invoice Information
Brief Description Deliver the invoice information to the physical production processes. **Extended Description** The purpose of the Deliver Invoice Information process is to ensure that the invoice information can be delivered to invoice physical production process. The invoice information includes both billing information and insertion information. This process is also responsible for monitoring the status of information delivery channel and ensuring the channel availability. **Explanatory** The invoice information includes both billing information and insertion information. **Mandatory** The purpose of the Deliver Invoice Information process is to ensure that the invoice information can be delivered to invoice physical production process. This process is also responsible for monitoring the status of information delivery channel and ensuring the channel availability.**M** The Core Billing Framework (CBF) module of GOLD produces pre-formatted XML bill files (see detailed description in 1.1.1.10.2.1). These files generated by cyclical bill runs as well as interim bills are stored by CBF in configurable directories in the file system. From these directories, an external bill formatting and dispatching system can pick up the bill files and perform further processing on them. This would include any publication media-specific rendering, feeding the physical bill production process, and bill archiving. A suitable partner application that is pre-integrated with GOLD is available. Ensuring delivering the invoice information to that downstream system is manually supported by checking the exchange file system directory. It can easily be automated by an end-to-end monitoring tool, which however is not in scope of GOLD itself. **Optional** Not used for this process element **Interactions** Not used for this process element

Table 4.11 Level 4 - 1.1.1.10.3.4 Commercial Arrangement for Production and Distribution Capability

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.10.3.4 Commercial Arrangement for Production and Distribution Capability
Brief Description Establish the requirements for, and manage the agreed commercial arrangements with, appropriate outsourced suppliers of the production and distribution capabilities. **Extended Description** The purpose of Administer Commercial Arrangement for Production and Distribution Capability process is to establish the requirements for, and manage the agreed commercial arrangements with, appropriate outsourced suppliers of the production and distribution capabilities. This process is responsible for output of the production and distribution requirements to outsourced supplier and amending the requirements based on the negotiation between Service Provider and outsourced supplier. This process is also responsible for drafting commercial contracts terms, including the responsibilities, payment condition, payment type, SLA, and signing the commercial contract with outsource supplier. **Explanatory** Not used for this process element **Mandatory** The purpose of Administer Commercial Arrangement for Production and Distribution Capability process is to establish the requirements for, and manage the agreed commercial arrangements with, appropriate outsourced suppliers of the production and distribution capabilities. This process is responsible for output of the production and distribution requirements to outsourced supplier and amending the requirements based on the negotiation between Service Provider and outsourced supplier. This process is also responsible for drafting commercial contracts terms, including the responsibilities, payment condition, payment type, SLA, and signing the commercial contract with outsource supplier.**AM** This process is part of the operator's support processes either supported by internal applications or third party applications that integrate with GOLD. All of the required bill production data is processed and delivery by GOLD, so that these support processes can deliver their management and quality management requirements. The production and delivery of bill information is an automated part of the overall process. **Optional** Not used for this process element

Interactions

Not used for this process element

Table 4.12 Level 4 - 1.1.1.10.3.5. Manage Paper and Envelope Availability

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.10.3.5. Manage Paper and Envelope Availability
Brief Description Manage availability of paper and envelope volumes to meet the needs of the physical production process, if internal processes are used. **Extended Description** The purpose of the Manage Paper and Envelope Availability process is to ensure the quantities of papers and envelopes are enough before starting invoice physical production. This process is responsible for ensuring the quality of paper and envelopes that fit the requirements from subsequent invoice physical production processes. For example the volume of envelope is suitable. If the requirements don't fit, this process is responsible for detecting the problems and reporting to other processes if required. **Explanatory** Not used for this process element **Mandatory** The purpose of the Manage Paper and Envelope Availability process is to ensure the quantities of papers and envelopes are enough before starting invoice physical production. This process is responsible for ensuring the quality of paper and envelopes that fit the requirements from subsequent invoice physical production processes. For example the volume of envelope is suitable. If the requirements don't fit, this process is responsible for detecting the problems and reporting to other processes if required.**AM** This process is part of the operator's support processes either supported by internal applications or third party applications that integrate with GOLD. All of the required bill production data is processed and delivery by GOLD, so that these support processes can deliver their management and quality management requirements. The production and delivery of bill information is an automated part of the overall process. **Optional** Not used for this process element

Interactions

Not used for this process element

Table 4.13 Level 4 - 1.1.1.10.3.6 Manage Production Run to Create Bill

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.10.3.6 Manage Production Run to Create Bill
Brief Description Manage the production runs to create the bills, if internal production facilities are used. **Extended Description** The purpose of Manage Production Run to Create Bill process is to manage the production runs to create the bills, if internal production facilities are used. This process is responsible for producing the physical bill based on the invoice information and, if necessary, wrapping bills into envelopes. The process also is responsible for monitoring that the produced bills are ready to be distributed. **Explanatory** Not used for this process element **Mandatory** The purpose of Manage Production Run to Create Bill process is to manage the production runs to create the bills, if internal production facilities are used. This process is responsible for producing the physical bill based on the invoice information and, if necessary, wrapping bills into envelopes. The process also is responsible for monitoring that the produced bills are ready to be distributed. **AM** Partially supported, as all of the required bill production data is processed and delivered by GOLD. The production and delivery of bill information is an automated part of the overall process. Supported to a large extent by a pre-integrated partner application. This solution provides bill rendering, feeding the physical bill production process, and bill archiving. **Optional** Not used for this process element **Interactions**

Not used for this process element

Table 4.14 Level 4 - 1.1.1.10.3.7 Manage Physical Production & Distribution Quality

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.10.3.7 Manage Physical Production & Distribution Quality
Brief Description Manage quality of the physical production and distribution processes, if internal production facilities are used. **Extended Description** The purpose of Manage Physical Production & Distribution Quality process is to manage quality of the physical production and distribution processes, if internal production facilities are used. This process is responsible for monitoring the whole physical production and distribution running, check the quality and validity of production and observing the distribution time cycle. The quality and validity of production can include correct association of customer, bill and time period of bill, printing quality, format of the production. This process is responsible for ensuring that the contents of production, including billing parts and insertion parts, are satisfied by customers and the productions can be delivered to customers' address on time and accurately. This process is also responsible for monitoring the efficiency of production process to ensure that the production process can timely produce a large number of productions to avoid distribution delay. **Explanatory** Not used for this process element **Mandatory** The purpose of Manage Physical Production & Distribution Quality process is to manage quality of the physical production and distribution processes, if internal production facilities are used. This process is responsible for monitoring the whole physical production and distribution running, check the quality and validity of production and observing the distribution time cycle. This process is responsible for ensuring that the contents of production, including billing parts and insertion parts, are satisfied by customers and the productions can be delivered to customers' address on time and accurately.

This process is also responsible for monitoring the efficiency of production process to ensure that the production process can timely produce a large number of productions to avoid distribution delay. **AM**

This process is part of the operator's support processes either supported by internal applications or third party applications that integrate with GOLD. All of the required bill production data is processed and delivery by GOLD, so that these support processes can deliver their management and quality management requirements. The production and delivery of bill information is an automated part of the overall process.

Optional

The quality and validity of production can include correct association of customer, bill and time period of bill, printing quality, format of the production.

Interactions

Not used for this process element

4.1.1.4 Supporting Evidence References (Works Cited)

GOLD R2.4 PDE	Product Description GOLD R2.4 R1.00.pdf; Product & Feature Description document for GOLD R2.4
CBF Architecture	POSTER_OPSC_Gold_CBF_Diagram_R2.4_V1.1.pdf; GOLD Billing Architecture Diagram
GOLD R2.4 OMA	OMA_Billing_OPSC_Gold_R2.4_V1.0.pdf; GOLD Billing Operator Manual
GOLD R2.4 Guide	GDE_OPSC_Gold_R2.4_V1.0.pdf; GOLD System Guide
GOLD R2.4 EEC	UMA_EEC_R2.4_V1.0.pdf; EEC – Extract Editor Component Release 2.4 User Manual
GOLD R2.4 ITDL	RMA_ITDL_R2.4_V1.0.pdf; ITDL Release 2.4 Reference Manual
GOLD BCP Backout	Feature notes – CR 23317 BCP Backup R1.01.pdf; Feature Notes – CR 23317 BCP Backout
GOLD R2.4 Database	RMA_DB_OPSC_Gold_R2.4_V1.0.pdf; Databases and Tables Release 2.4 Reference Manual

4.1.1.5 Level 2: 1.1.1.10 - Bill Invoice Management - Scores

Table 4.15 Level 2: 1.1.1.10 - Bill Invoice Management - Scores

Level 2: 1.1.1.10 - Bill Invoice Management [3/3]		
Level 3 Process	**Level 4 Process**	**L4/L3 Process Score**
1.1.1.10.1 - Apply Pricing, Discounting, Adjustments & Rebates		**5**
	1.1.1.10.1.1 Obtain Billing Events	100%
	1.1.1.10.1.2 Apply Pricing, Discounting, Adjustments & Rebates to Customer Account	100%
	1.1.1.10.1.3 Apply Agreed Customer Bill Adjustment	100%
1.1.1.10.2 - Create Customer Bill Invoice		**4.8**
	1.1.1.10.2.1 Render & Format Invoice	100%
	1.1.1.10.2.2 Deliver Electronic Invoice	75%
	1.1.1.10.2.3 Verify Invoice Quality	100%
	1.1.1.10.2.4 Manage Customer Invoice Archive	75%
1.1.1.10.3 - Produce & Distribute Bill		**4.4**
	1.1.1.10.3.1 Co-ordinate Billing Insertion	100%
	1.1.1.10.3.2 Establish & Manage Bill Production Cycle	100%
	1.1.1.10.3.3 Deliver Invoice Information	100%
	1.1.1.10.3.4 Administer Commercial Arrangement for Production and Distribution Capability	50%
	1.1.1.10.3.5 Manage Paper and Envelope Availability	50%
	1.1.1.10.3.6 Manage Production Run to Create Bill	50%
	1.1.1.10.3.7 Manage Physical Production & Distribution Quality	50%

4.1.2 Level 2: 1.1.1.11 - Bill Payments & Receivables Management

4.1.2.1 Level 3: 1.1.1.11.1 - Manage Customer Billing

Table 4.16 Level 3 - 1.1.1.11.1 Manage Customer Billing

LEVEL 3 PROCESS MAPPING DETAILS 1.1.1.11.1 Manage Customer Billing
Brief Description Ensure effective management of the customer's billing account as it relates to the products purchased and consumed throughout the appropriate billing cycle. **Extended Description** The primary purpose of this process pertains to effective management of the customer's billing account as it relates to the products purchased and consumed throughout the appropriate billing cycle. This process focuses on managing changes to the customer's billing account (for example, customer billing address, etc.) as it relates to the customer's service portfolio, such as ensuring that the correct purchased products are assigned to the customer's billing account for accurate billing. **AM** In Orga Systems' product GOLD the Core Billing Framework (CBF) processes rated event reports provided by the Real-time Environment (RTE) as well as all other financial transactions performed on a customer's billing account. The transactions are assigned as Event Detail Records (EDRs) to the payment responsible accounts. These are charges (usage charges, recurring charges, non-recurring charges) as well as credits (payments, reloads, adjustments) and other reportable items (discounts, tax details). The bill run accumulates the unbilled EDRs into unformatted bill records. **(CBF Architecture, EIP - Event Import Processor, BCP – Bill Calculation Processor)** **(GOLD R2.4 PDE, 6.8 Event Detail Records)** **(GOLD R2.4 PDE, 6.9 Invoices and Statements)** **(GOLD R2.4 PDE, 7.5 Billing)** **(GOLD R2.4 GDE, 6.1 Billing)** For external business systems such as CRM or Customer Care the GOLD Standard interface provides a set of services to add, update or search customer and account related data, e.g. billing address, billing profile, payment profile. These services can also be executed using the Account Management Component (AMC) of the Administration and Configuration Cockpit (ACC) GUI. **(CBF Architecture, GOLD Standard IF, CBF Internal API Services)** **(GOLD R2.4 PDE, 3.1.1 GOLD Standard Interface)** **(GOLD R2.4 PDE, 7.15 Customer and Account Management)**

Explanatory Reserved for future use. **Mandatory** Reserved for future use. **Optional** Reserved for future use. **Interactions** Reserved for future use.

4.1.2.2 Level 3: 1.1.1.11.2 - Manage Customer Payments

Table 4.17 Level 4 - 1.1.1.11.2.1 Manage Customer Payment Plan

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.11.2.1 Manage Customer Payment Plan
Brief Description Manage payment plans made with the customer. **Extended Description** The purpose of Manage Customer Payment Plan process is to establish new payment plans, modify or remove existing payment plans. Customer can decide payment plans to automatically pay bills from a designated account that can be credit card, back account, third party and etc. It also enables paying a bill in installment. For example, customer can apply make a payment $20 per month for $100 bill in 5 months. The payment plan can enable making a payment by pre-defined payment method. For example, customer defines paying mobile monthly line rental fee by direct debt and paying digital TV programmes by cash. **Explanatory** Customer can decide payment plans to automatically pay bills from a designated account that can be credit card, back account, third party and etc. It also enables paying a bill in installment. For example, customer can apply make a payment $20 per month for $100 bill in 5 months. The payment plan can enable making a payment by pre-defined payment method. For example,

customer defines paying mobile monthly line rental fee by direct debt and paying digital TV programmes by cash.

Mandatory

The purpose of Manage Customer Payment Plan process is to establish new payment plans, modify or remove existing payment plans. **AM**

Products are associated to bill types which allows different types of products to receive different types of invoices. For example, hardware (e.g. mobile handsets) can be invoiced separately from network charges (e.g. usage, monthly recurring charges) or voice separately from content/video.

For each bill type a payment responsible account may have a separate payment profile which specifies the preferred payment type (e.g. credit card, check, direct debit, etc.), bank and credit card details.

(GOLD R2.4 PDE, 6.2 Accounts)

(GOLD R2.4 PDE, 7.15.5 Create Top-level Account)

(AMC R2.4 UMA, 3.10 Payment Profile)

Agreements with the customer in order to settle his overdue debts by installments are handled in process "Level 4 - 1.1.1.11.3.3 Manage Overdue Invoice Payment".

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.18 Level 4 - 1.1.1.11.2.2 Collect Customer Payment

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.11.2.2 Collect Customer Payment
Brief Description Collect payments made by the customer. **Extended Description** The purpose of Collect Customer Payment process is to collect the payments from the customer. These processes can include credit/debit/EFT payments using various channels, either directly or through third parties, and cash or check payments, either directly or through third parties. To the extent that processing of any payments is undertaken internally, i.e. check processing, these

processes are responsible for managing the operation and quality of the internal processing.

Note that the Establish Back-End Bank Account process is used to create the link to collection customer payment via bank.

Explanatory

Note that the Establish Back-End Bank Account process is used to create the link to collection customer payment via bank.

Mandatory

The purpose of Collect Customer Payment process is to collect the payments from the customer. To the extent that processing of any payments is undertaken internally, i.e. check processing, these processes are responsible for managing the operation and quality of the internal processing. **A**

The Orga Systems' product GOLD provides the file-based Payments Interface to exchange payment data with a 3rd party Payment Gateway or other external systems which interact with banks or clearinghouses.

For outgoing payment requests (e.g. direct debit, credit card) the Report Extract Processor (REP) of the Core Billing Framework (CBF) provides XML files. The payment request files can then be fed into an external payment system to collect money from bank accounts or credit cards.

The Payment File Processor (PFP) receives incoming payment files (e.g. checks, cash payments) in XML format from an external payment system (including response files for the outgoing payment requests).

(GOLD R2.4 PDE, 3.1.15 Payments Interface)

(GOLD R2.4 PDE, 2.1.4 Payment File Processor (PFP))

(GOLD R2.4 PDE, 7.13.3 Payment for Postpaid Account)

Besides the file-based interface external systems can also utilize the online interface and directly issue payment transactions via the GOLD Standard interface.

(GOLD Standard IF R2.4, 4.12 Payments)

Optional

These processes can include credit/debit/EFT payments using various channels, either directly or through third parties, and cash or check payments, either directly or through third parties.

Interactions

Not used for this process element

Table 4.19 Level 4 - 1.1.1.11.2.3 Reconcile Customer Payment

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.11.2.3 Reconcile Customer Payment
Brief Description Reconcile the payments to the invoices. **Extended Description** The purpose of Reconcile Customer Payment process is to reconcile the payments to the invoices. This process is meant to match these payments with the services/invoices delivered to this customer. Where payments do not match invoices, this process is responsible for informing the Manage Customer Debt Collection processes of any underpayments, and the Bill Inquiry Handling processes for any over-payments. Underpayments and overpayments are handled appropriately by these separate processes. These processes are responsible for reconciling the money received into the bank accounts against the payments expected in the invoices. Additionally these processes inform the Financial Management on all those payments for updating the ledger. **Explanatory** Underpayments and overpayments are handled appropriately by Manage Customer Debt Collection and Bill Inquiry Handling processes. **Mandatory** The purpose of Reconcile Customer Payment process is to reconcile the payments to the invoices. This process is meant to match these payments with the services/invoices delivered to this customer. Where payments do not match invoices, this process is responsible for informing the Manage Customer Debt Collection processes of any underpayments, and the Bill Inquiry Handling processes for any over-payments. These processes are responsible for reconciling the money received into the bank accounts against the payments expected in the invoices. **A** The Core Billing Framework (CBF) module of GOLD identifies the appropriate account and distributes the payment amount to its open invoice due amounts. It is configurable how payment transactions are distributed to invoices if no specific invoice number is specified. If the payment amount is greater than the sum of all open due amounts the remainder is put on the suspense account. The amount of the suspense account can either be considered automatically during the next bill run and allocated to the next invoice or distributed manually via the GOLD Standard interface. Furthermore it is possible to refund it to the customer. The Bill Inquiry Handling process or external business systems such as CRM can query the amount of the suspense account via the GOLD Standard interface. **(GOLD R2.4 PDE, 7.13.3 Payment for Postpaid Account)** **(GOLD R2.4 PDE, 7.13.4 Refunds)** To manage customer debt collections, within the integrated solution of GOLD and CPM (Collections Processing Module), CPM monitors the accounts receivable in GOLD by means

of a batch process and a joint interface. After a predefined grace period has passed by and no sufficient payment has been received, CPM creates collectibles related to the overdue accounts receivable.

(CPM PDE, Section 3, Collection Scenarios, Steps and Actions)

Additionally these processes inform the Financial Management on all those payments for updating the ledger. **A**

The Journaling functionality in CBF reports all financial transactions to an external General Ledger system. Journaling is performed in journal cycles (corresponding to the General Ledger's accounting cycles) which can be further divided into sub-cycles. The sub-cycles allow an operator to distribute the load as well as give the opportunity to create intermediate feed files. During one of the sub-cycles all payment transactions are collected.

(GOLD R2.4 PDE, 7.8 Journaling)

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.20 Level 4 - 1.1.1.11.2.4 Manage Back-End Bank Account

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.11.2.4 Manage Back-End Bank Account
Brief Description Manage back-end bank accounts for receipt of the customer payments and for the transfer of funds collected by third parties. **Extended Description** The purpose of Manage Back-End Bank Account process is to manage back-end bank accounts for receipt of the customer payments and for the transfer of funds collected by third parties. These processes are responsible for managing payment commercial agreement agreed with banks and the payment interfaces for collecting the customer payments. **Explanatory** Not used for this process element **Mandatory** The purpose of Manage Back-End Bank Account process is to manage back-end bank accounts for

receipt of the customer payments and for the transfer of funds collected by third parties. These processes are responsible for managing payment commercial agreement agreed with banks and the payment interfaces for collecting the customer payments.**AM**

A customized solution for this process was provided for a customer project in order to collect customer payments. In this special case GOLD is connected to an integration layer for the bank which holds all customer bank accounts. This online interface is used to request payments from the bank accounts as well as to refund money to these bank accounts.

Evidence cannot be provided as it concerns confidential documents.

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.21 Level 4 - 1.1.1.11.2.5 Administer Commercial Arrangement for Third Party Supplier

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.11.2.5 Administer Commercial Arrangement for Third Party Supplier
Brief Description Establish the requirements for, and manage any commercial arrangements agreed with, third party suppliers. **Extended Description** The purpose of Administer Commercial Arrangement for Third Party Supplier process is to establish the requirements for, and manage any commercial arrangements agreed with, third party suppliers of payment services. The requirements can include payment transfer cycle, payment interface requirements and payment methods requirements. After commercial arrangements are agreed, this process is responsible for monitor the execution of the commercial arrangements. Note that the Supply Chain Capability Delivery process is used to deliver the commercial agreements. **Explanatory** The requirements can include payment transfer cycle, payment interface requirements and payment methods requirements. Note that the Supply Chain Capability Delivery process is used to deliver the commercial agreements. **Mandatory** The purpose of Administer Commercial Arrangement for Third Party Supplier process is to establish the requirements for, and manage any commercial arrangements agreed with, third party suppliers

of payment services. After commercial arrangements are agreed, this process is responsible for monitor the execution of the commercial arrangements.

This process is assumed to be handled outside of GOLD.

Optional

Not used for this process element

Interactions

Note that the Supply Chain Capability Delivery process is used to deliver the commercial agreements.

4.1.2.3 Level 3: 1.1.1.11.3 - Manage Customer Debt Collection

Table 4.22 Level 4 - 1.1.1.11.3.1 Identify Overdue Invoice

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.11.3.1 Identify Overdue Invoice
Brief Description Identify invoices which are overdue for payment. **Extended Description** The purpose of Identify Overdue Invoice process is to identify invoices which are overdue for payment. It monitors the amount due from the customer, i.e. check whether the payments are made on time, and implements necessary activities and policies to recover amounts overdue. **Explanatory** i.e. check whether the payments are made on time, and implements necessary activities and policies to recover amounts overdue. **Mandatory** The purpose of Identify Overdue Invoice process is to identify invoices which are overdue for payment. It monitors the amount due from the customer **A** The payment due date together with the amount due is held in the accounts receivable within the Core Billing Framework (CBF) of GOLD. By means of a batch process the Collections Processing Module (CPM) of GOLD monitors the accounts receivable in GOLD and checks for those being overdue, for which CPM creates and maintains collectibles. **(CPM PDE, Section 3, Collection Scenarios, Steps and Actions)** **(GOLD R2.4 PDE, Section 2.1.8.3, Accounts Receivable)**

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.23 Level 4 - 1.1.1.11.3.2 Administer Overdue Invoice Follow-Up

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.11.3.2 Administer Overdue Invoice Follow-Up
Brief Description Initiate and manage follow-up with customers having overdue amounts. **Extended Description** The purpose of Administer Overdue Invoice Follow-Up process is to initiate and manage follow-up with customers having overdue amounts. These processes can be set up routinely or manually. This process is responsible for setting up the follow-ups based on the policies. The policies are associated to customer's profile such as customer credit, customer group, overdue amounts, debt occurrence times, purchased products and etc. This process is also responsible for modifying or removing the designated follow-ups when the policies or situations are changed. The follow-ups can include overdue invoice reminding, customer credit control, service restriction, establishing customer debt profile, selling parts of debt portfolios to third party for debt recovery. **Explanatory** These processes can be set up routinely or manually.The follow-ups can include overdue invoice reminding, customer credit control, service restriction, establishing customer debt profile, selling parts of debt portfolios to third party for debt recovery. **Mandatory** The purpose of Administer Overdue Invoice Follow-Up process is to initiate and manage follow-up with customers having overdue amounts. **AM** To initiate and manage the follow-up with customers having overdue amounts, collection scenarios are applied to collectibles by use of CPM. Collection scenarios consist of pre-defined measures executed in steps, which depend on the age of an unpaid debt. The first measure is applied, when the granted grace period for the invoice issued is over. Subsequent measures are executed in steps, defined by offsets in days versus the previous step. **(CPM PDE, Section 3, Collection Scenarios, Steps and Actions)**

Scenario actions are either performed (or triggered) automatically by the system (for instance sending an SMS) or are executed manually by agents in a collections center (for instance calling a defaulting customer).

(CPM PDE, Section 4, Measures)

This process is responsible for setting up the follow-ups based on the policies. The policies are associated to customer's profile such as customer credit, customer group, overdue amounts, debt occurrence times, purchased products and etc. **A**

Debt collection policies of a service provider are realized by the application of various parameters to select, apply and diversify appropriate collection scenarios. Differentiation according to purchased products is supported by customer segments, not individual accounts. Taking into account debt occurrence times is not an automated procedure within CPM R1.0.

(CPM PDE, Section 5, Collections Policy and Customer Segmentation)

This process is also responsible for modifying or removing the designated follow-ups when the policies or situations are changed. **AM**

Generic policy changes are implemented by means of collection scenarios which can be configured and deployed using the Collections Configuration Desktop (CCD).

(CPM PDE, Section 5.1, Scenario Definition)

The Collections Agent Desktop (CAD) allows manually changing several settings related to customers and their collection profiles. Override options are available for the applied grace period and the collection scenario. It is also possible to exempt a customer from collections at all or just to freeze the current debt collection status.

(CPM PDE, Section 5.3, Collection Profile)

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.24 Level 4 - 1.1.1.11.3.3 Manage Overdue Invoice Payment

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.11.3.3 Manage Overdue Invoice Payment
Brief Description Arrange and monitor payment plans to allow customers to pay overdue amounts in installments.

Extended Description

The purpose of Manage Overdue Invoice Payment process is to arrange and monitor payment plans to allow customers to pay overdue amounts in installments. This process arranges payment plans to allow customers to pay overdue amounts, leads to an agreement with the customers, and monitors the execution of the payment plans.

The payment plan is associated to customer's profile such as the customer's credit, payment history, customer group or purchased products. This process should consider the payment amounts in installment whether can be undertaken by the customer.

Explanatory

The payment plan is associated to customer's profile such as the customer's credit, payment history, customer group or purchased products.

Mandatory

The purpose of Manage Overdue Invoice Payment process is to arrange and monitor payment plans to allow customers to pay overdue amounts in installments. This process arranges payment plans to allow customers to pay overdue amounts, leads to an agreement with the customers, and monitors the execution of the payment plans. This process should consider the payment amounts in installment whether can be undertaken by the customer. **AM**

In the Orga Systems terminology promise plans are agreements with the customer to settle his overdue debts by installments.

CPM supports the creation and monitoring of promise plans in a convenient manner by means of CAD (Collections Agent Desktop). Within given, preconfigured limits and thresholds the collections agent can enter a promise plan assigned to a collectible. This contains several installments to be paid in defined time intervals by the customer to keep his promise.

CPM monitors the execution of all active promise plans and automatically determines if a promise plan is (finally) kept or broken.

(CPM PDE, Section 4.4.1, Promise Plans)

(CPM PDE, Section 3.3.3, Conditional Branches and Action Classes)

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.25 Level 4 - 1.1.1.11.3.4 : Initiate Customer Debt Recovery Activities

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.11.3.4 : Initiate Customer Debt Recovery Activities
Brief Description Initiate debt recovery activities in accordance with appropriate commercial practice and policies. **Extended Description** The purpose of Initiate Customer Debt Recovery process is to initiate customer debt recovery activities in accordance with appropriate commercial practice and policies. This process includes deciding appropriate recovery activities based on debt recovery policies, launching debt recovery activities and monitoring the executions. The debt recovery policies are associated to the customer's profile such as payment history, customer group, purchased products, overdue amounts. This process includes overdue invoice reminding via phone call, SMS, email, by manually or automatically, by humans or applications. This process is also responsible for terminating customer debt recovery activities when the customer pays. **Explanatory** Not used for this process element **Mandatory** The purpose of Initiate Customer Debt Recovery process is to initiate customer debt recovery activities in accordance with appropriate commercial practice and policies. This process includes deciding appropriate recovery activities based on debt recovery policies, launching debt recovery activities and monitoring the executions. **A** CPM supports the initiation of appropriate debt collection measures as defined by the policies of the service provider. After an overdue debt has been detected, CPM will assign a predefined scenario which includes a sequence of recovery activities. The decision for the best fitting scenario is automatically performed by a scenario key matching algorithm. **(CPM PDE, Section 5.1, Scenario Definition)** **(CPM PDE, Section 5.2, Scenario Application)** The debt recovery policies are associated to the customer's profile such as payment history, customer group, purchased products, overdue amounts. This process includes overdue invoice

reminding via phone call, SMS, email, by manually or automatically, by humans or applications. **AM**

Generic customer profile and segmentation information is kept in the billing system GOLD. CPM holds the collection profile and the history of collection scenario instances applied. Differentiation of collection scenarios dependent on purchased products can only be performed based on customer segment information maintained in GOLD, not on products sold to the individual customer. CPM schedules both manual and automatic actions which include triggering phone calls from the collections agent (manually) or SMS and email message delivery (automated) by means of a messaging system. For the SMS channel also the delivery can be performed by an in-house Orga Systems product, called wIQ (wireless Information Query).

(CPM PDE, Section 5.1, Scenario Definition)

(CPM PDE, Section 4.1, Customer Communication)

This process is also responsible for terminating customer debt recovery activities when the customer pays. **AM**

Received payments from a customer are monitored by a dedicated CPM process and based on met conditions these lead to a termination of measures, i.e. the collectible is resolved.

(CPM PDE, Section 3.3.3, Conditional Branches and Action Classes)

Also it is possible to manually resolve a particular collectible, for instance in case of a promised payment by the customer.

(CPM PDE, Section 4.4.2, Virtual Advance Payments)

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.26 Level 4 - 1.1.1.11.3.5 Manage Aged Customer Debt Portfolio

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.11.3.5 Manage Aged Customer Debt Portfolio
Brief Description Manage the aged customer debt portfolio. **Extended Description**

The purpose of Manage Aged Customer Debt Portfolio process is to manage the aged customer debt portfolio. When the customer debt can't be recovered in a period of time decided by Service Provider, this process is responsible to transform this customer debt to aged customer debt portfolio.

This process is responsible for transforming the overdue invoice to the aged customer debt portfolio when it didn't be recovered after a time of period or based on other triggers according to the Service Provider's policies. The aged customer debt portfolio should include all the information of the customer debt profiles. The process is also responsible for managing and maintaining transforming cycle.

When the overdue payment is recovered after transforming, this process is responsible to remove the aged customer debt portfolio and notice Establish & Manage Customer Debt Profiles process to update the customer debt profile.

Explanatory

Not used for this process element

Mandatory

The purpose of Manage Aged Customer Debt Portfolio process is to manage the aged customer debt portfolio. When the customer debt can't be recovered in a period of time decided by Service Provider, this process is responsible to transform this customer debt to aged customer debt portfolio.

This process is responsible for transforming the overdue invoice to the aged customer debt portfolio when it didn't be recovered after a time of period or based on other triggers according to the Service Provider's policies. The aged customer debt portfolio should include all the information of the customer debt profiles. The process is also responsible for managing and maintaining transforming cycle. **AM**

CPM manages the customer debt portfolio dependent on several parameters such as the age of debts. Within a scenario a collectible is considered to be finally unresolved, if all measures applied in direction to the defaulting customer did not lead to a sufficient settlement of the debt until a certain point in time or a scenario step correspondingly. At this stage, within a collection scenario it is possible to trigger the export of all relevant information to the next business unit processing this case, for instance the legal department. There is no unique transforming cycle in CPM but means to integrate with other processes such as life cycle state progression and interfaces.

(CPM PDE, Section 3.4, Scenario Termination)

One example for "other triggers" than "time" is the account life cycle state. By means of the account life cycle state indicator used as one scenario key, it is possible to assign particular scenarios for terminated contracts. In the current CPM release manual interaction is required for the transition of a collectible to such particular scenario.

(CPM PDE, Section 5.1, Scenario Definition)

When the overdue payment is recovered after transforming, this process is responsible to remove the aged customer debt portfolio and notice Establish & Manage Customer Debt Profiles process to update the customer debt profile. **AM**

If a payment related to a collectible is received, per default CPM will resolve the collectible, also if it is already managed by a subsequent process. However, if a collectible has been sold and/or written off, payments are not automatically distributed to the original due amount.
In this case, dependent on the configured rules, a received payment might be guided to due amounts of other invoices (which might not yet be overdue) or to suspense. Payments that are explicitly issued for a written off invoice or invoice item generally apply to suspense. The amount on the suspense account can subsequently be reallocated (automatically during next bill run) depending on the configured rules, or manually via the GOLD Standard Interface.
In order to guide a payment to a previously executed write-off it is necessary to cancel the write-off manually and reallocate the amount from suspense manually to this due amount.

(CPM PDE, Section 3.4, Scenario Termination)

(GOLD R2.4 PDE, Section 7.13.5, Write-offs)

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.27 Level 4 - 1.1.1.11.3.6 Establish & Manage Customer Debt Profiles

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.11.3.6 Establish & Manage Customer Debt Profiles
Brief Description Establish and manage customer debt profiles to assist in managing debt recovery and debt risk on a customer, product or customer group basis. **Extended Description** The purpose of Establish & Manage Customer Debt Profiles process is to establish and manage customer debt profiles to assist in managing debt recovery and debt risk on a customer, product or

customer group basis. The customer debt profile is a part of customer's profile, which can include customer credit, customer group, overdue date, overdue amounts, overdue occurring times, debt recovery means and occurring times, customer debt recovery response and etc. Other process can base the customer debt profile to upgrade or downgrade the customer credit or apply other controls. This process is responsible for keeping updates of the customer debt profiles according to results from Initiate Customer Debt Recovery Activities process.

Explanatory

Not used for this process element

Mandatory

The purpose of Establish & Manage Customer Debt Profiles process is to establish and manage customer debt profiles to assist in managing debt recovery and debt risk on a customer, product or customer group basis. **AM**

Customer groups are also referred to as customer segments in GOLD. CPM retrieves segmentation information from GOLD and uses this as selection parameter for the appropriate scenario.

(GOLD R2.4 PDE, Section 6.2, Accounts)

(CPM PDE, Section 5.1, Scenario Definition)

Customers might also have an individual collection profile, by which certain parameters defined on a segment level can be overridden. This is possible for the applied grace period, exemption from collections in general and for the applied scenario as such. CPM allows the collections agent to change a collection profile manually using CAD.

(CPM PDE, Section 5.3, Collection Profile)

The customer debt profile is a part of customer's profile, which can include customer credit, customer group, overdue date, overdue amounts, overdue occurring times, debt recovery means and occurring times, customer debt recovery response and etc. This process is responsible for keeping updates of the customer debt profiles according to results from Initiate Customer Debt Recovery Activities process. **AM**

The customer debt profile is distributed between GOLD and CPM. GOLD holds the credit limit of a customer or a payment responsible account respectively. GOLD is also the master of customer group (segmentation) information, which is inherited by CPM. CPM keeps track of the entire collection history for a customer or a payment responsible account. The collections agent can enter notes for the results of a dunning call and particular agreements with the defaulting customer. In the current Release 1.0 of CPM there is no automated scoring mechanism, which allows for changing customer settings based on the collections history (e.g. overdue occurring times).

(CPM PDE, Section 4.1, Customer Communication)

(CPM PDE, Section 5, Collections Policy and Customer Segmentation)

(CPM PDE, Section 5.3, Collection Profile)

Optional

Not used for this process element

Interactions

Other process can base the customer debt profile to upgrade or downgrade the customer credit or apply other controls.

Table 4.28 Level 4 - 1.1.1.11.3.7 Establish & Manage Commercial Debt Recovery Arrangement

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.11.3.7 Establish & Manage Commercial Debt Recovery Arrangement
Brief Description Establish and manage commercial arrangements with third parties for the recover of aged debt, and/or for the write-off and selling of parts of the debt portfolio to third parties. **Extended Description** The purpose of Establish & Manage Commercial Debt Recovery Arrangement process is to establish and manage commercial arrangements with third parties for the recovery of aged debt, and/or for the write-off and selling of parts of the debt portfolio to third parties. This process is responsible for filtering and packaging the aged customer debt portfolios based on the Service Provider's policies, deciding the third parties' action items and monitoring the status of the arrangements. Note that the Supply Chain Capability Delivery process is used to deliver the commercial agreements. **Explanatory** Not used for this process element **Mandatory** The purpose of Establish & Manage Commercial Debt Recovery Arrangement process is to establish and manage commercial arrangements with third parties for the recovery of aged debt, and/or for the write-off and selling of parts of the debt portfolio to third parties. This process is responsible for filtering and packaging the aged customer debt portfolios based on the Service Provider's policies, deciding the third parties' action items and monitoring the status of the arrangements. **AM** CPM allows preparing (bad) debts for selling (factoring business) and all relevant information is made available through a file-based interface. Write-offs of the relevant accounts receivable balances are finally performed in GOLD. Outside collections agencies

can be registered in CPM by means of CCD; contract management and commercial arrangements are not in scope of CPM. Filtering and packaging of collectibles is implicitly performed within the applied collection scenario and within the scenario action registered outside collections agencies are selected as destination. CPM in its current version does not allow for referral and recall of debts related to outside collections agencies.

(CPM PDE, Section 4.5, Sale of Debt)

(GOLD R2.4 PDE, Section 7.13.5, Write-offs)

Optional

Not used for this process element

Interactions

Note that the Supply Chain Capability Delivery process is used to deliver the commercial agreements.

4.1.2.4 Supporting Evidence References (Works Cited)

GOLD R2.4 PDE	Product Description GOLD R2.4 R1.00.pdf; Product & Feature Description document for GOLD R2.4
GOLD R2.4 Guide	GDE_OPSC_Gold_R2.4_V1.0.pdf; GOLD System Guide
CBF Architecture	POSTER_OPSC_Gold_CBF_Diagram_R2.4_V1.1.pdf; GOLD Billing Architecture Diagram
AMC R2.4 UMA	UMA_AMC_R2.4_V1.1.pdf; User Manual for Account Management Component GUI
GOLD Standard IF	IFS_OPSC_Gold_Standard_IF_R2.4_V1.1.pdf; Interface specification for the GOLD Standard Interface
CPM R1.0 PDE	Product Description GOLD CPM Release 1.0 - R1.00.pdf; Product & Feature Description GOLD Collections Processing Module R1.0

4.1.2.5 Level 2: 1.1.1.11 - Bill Payments & Receivables Management - Scores

Table 4.29 Level 2: 1.1.1.11 - Bill Payments & Receivables Management - Scores

Level 2: 1.1.1.11 - Bill Payments & Receivables Management		
Level 3 Process	**Level 4 Process**	**L4/L3 Process Score**
1.1.1.11.1 - Manage Customer Billing		**5**
1.1.1.11.2 - Manage Customer Payments		**4.5**
	1.1.1.11.2.1 Manage Customer Payment Plan	100%
	1.1.1.11.2.2 Collect Customer Payment	100%
	1.1.1.11.2.3 Reconcile Customer Payment	100%
	1.1.1.11.2.4 Manage Back-End Bank Account	75%
	1.1.1.11.2.5 Administer Commercial Arrangement for Third Party Supplier	0%
1.1.1.11.3 - Manage Customer Debt Collection		**4.9**
	1.1.1.11.3.1 Identify Overdue Invoice	100%
	1.1.1.11.3.2 Administer Overdue Invoice Follow-Up	100%
	1.1.1.11.3.3 Manage Overdue Invoice Payment	100%
	1.1.1.11.3.4 Initiate Customer Debt Recovery Activities	100%
	1.1.1.11.3.5 Manage Aged Customer Debt Portfolio	100%
	1.1.1.11.3.6 Establish & Manage Customer Debt Profiles	100%
	1.1.1.11.3.7 Establish & Manage Commercial Debt Recovery Arrangement	75%

4.1.3 Level 2: 1.1.1.13 - Charging

4.1.3.1 Level 3: 1.1.1.13.1 - Perform Rating

Table 4.30Level 4 - 1.1.1.13.1 Perform Rating

LEVEL 3 PROCESS MAPPING DETAILS 1.1.1.13.1 Perform Rating
Brief Description Calculating the value of the service/product, before, during or after the rendering of the service. **Extended Description** Process responsible for calculating the value of the service/product, before, during or after the rendering of the service, based on parameters of the request (type, quantity, etc.), parameters of the customer/subscriber (tariffs, price plans, accumulated usage, contracts, etc.) and other parameters (time-of-day, taxes, etc.). The same request maybe rated differently for different subscribers based on their purchased offers or service agreements. **A** In Orga Systems´ product GOLD the rating process is responsible for pricing the usage events. The rating process selects the tariff that should be used to calculate the charge or compensation. Once rating has priced the event data, it is charged to a customer account. Rated events are then stored in Core Billing Framework of GOLD to be billed later. (GOLD R2.4 PDE, 7.4 Rating) Rating may be performed in real-time or in post-event mode. Real-time rating is not necessarily performed only for prepaid accounts, it can also be performed for postpaid accounts. Post-event rating may be performed as a fallback solution for prepaid accounts or postpaid accounts. (GOLD R2.4 PDE, 3.1.5 CDR Interface, 7.4.3 Post-event Rating) (GOLD R2.4 PDE, 3.2.3 Online Charging (OLC) Interface, 7.4.4 Real-time Rating) Rating also handles recurring charges, bundles and bonuses that are associated to a product. (GOLD R2.4 PDE, 7.4.8 Recurring Operations) (GOLD R2.4 PDE, 7.4.9 Real-time Bonus) The rating procedure of the Convergent Rating Engine (CRE) in the Real-time Environment (RTE) first determines which nodes of the so-called service tree apply for a certain usage event class. The service tree is a means to categorize usage events for which different tariffs have to be applied and distinguish different usage scenarios. Each service tree node normally contains a set of matching rules by which arbitrary parts of the events are checked. For example: • the event type field to distinguish different usage events (MOC, MO-SMS etc.);

- information provided by mediation to distinguish on-net or national or international calls;
- the called party field to single out special numbers like emergency calls or calls to Customer Care.

(GOLD R2.4 PDE, 7.4.1 Pricing)

Explanatory

Reserved for future use.

Mandatory

Reserved for future use.

Optional

Reserved for future use.

Interactions

Reserved for future use.

4.1.3.2 Level 3: 1.1.1.13.2 - Apply Rate Level Discounts

Table 4.31Level 3 - 1.1.1.13.2 Apply Rate Level Discounts

LEVEL 3 PROCESS MAPPING DETAILS 1.1.1.13.2 Apply Rate Level Discounts
Brief Description Applies discounts to product prices. **Extended Description** This process applies discounts to product prices at an individual product level. A discount may be expressed as a monetary amount or percentage, and modifies a price for a product. When a discount is expressed as a percentage, the discounting process determines the discount calculated in relation to the price for the product. **A** In Orga Systems´ product GOLD it is possible to configure discount tariff components to apply a reduced price for usage tariffs or a reduced price for recurring operations (recurring bundles, recurring charges) in real-time. This can be used e.g. for promotional or temporary discounts without the necessity to change the standard usage tariff or standard recurring operation. This discount is expressed in percentage. The discount percentage can be predefined or customer specific and changed at any time. It is possible to apply more than one discount at a time for the same event. Discount tariffs are enabled via rating rules. This means a discount is only applied if the

specified rule was selected to rate the usage event.

(GOLD R2.4 PDE, 7.4.10 Real-time Discount)

Discounts with a monetary amount can be realized in different ways:

- with an additional usage rule in the usage tariff that specifies a reduced price and which is applied instead of the standard usage rule or
- with the personal price feature or
- as a real-time bonus

The personal prices specified for a specific customer overwrite the default prices of his standard product.

(GOLD R2.4 PDE, 7.15.14 Assign Personal Price Sets)

With a real-time bonus a credit amount can be granted after an event is rated. However, the credit does not reduce the cost of the original event but is instead used for the following events.

(GOLD R2.4 PDE, 7.5.9 Real-time Bonus)

The discount may be displayed as a separate entry on the bill or may be combined with the rate for the product to only show as one entry. **A**

After rating, detailed discount information including the percentage, the discounted amount as well as the original amount is forwarded from the Real-time Environment (RTE) to the Core Billing Framework (CBF) of GOLD in order to consider it for the invoice or a statement. (GOLD R2.4 PDE, 7.4.10 Real-time Discount)

The Interface Template Framework (ITF) of GOLD provides the framework for the definition of templates used for bill data structuring. ITF consists of a standardized Interface Template Definition Language (ITDL) to define the content and structure of the customer specific output files. ITF can be configured to display discounts as a separate entry or as one entry with the rate on the bill.

(GOLD R2.4 PDE, 7.11 ITF / ITDL for Extraction of Billing Data)

Discounts may be a one-time event or may have some duration (days, months, life of product, etc.). **AM**

All components of a sold product have its own life cycle. Therefore it is possible to define a termination date/time for the discount tariff component when it is being sold or schedule the termination later manually.

(GOLD R2.4 PDE, 6.6 Life Cycle States)

Discounts may apply to a specific customer or be generally available based on selection of products (for example - bundles). **A**

Real-time discount rules can be defined in the configuration GUI of GOLD in order to reduce the cost calculated by the rating rule. Multiple discounts can be defined in a *discount group*

and will be applied one after the other (sequence) or one of the group (choice).

To allow account specific discount rates this must be explicitly enabled for each discount rule otherwise the default percentage applies.

(GOLD R2.4 PDE, 7.16.8 Create Discount Tariffs)

Discounting structures may involve tiers, tapers, or thresholds. **A**

Real-time discounts are applied at rating time. They are applied individually to each event which is eligible to be discounted and reduce the cost of this event with immediate effect without considering other events.

(GOLD R2.4 PDE, 7.16.8 Create Discount Tariffs)

However, discount tariffs can be used in combination with crediting tariffs (which are used to create real-time bonus). This allows also to configure tariffs where the first x units per day are rated with regular price and for all following units the discount with reduced price is applied.
Crediting tariff components support also credit calculation based on accumulated amounts (e.g. tiers, thresholds) for the use of a real-time bonus.
(GOLD R2.4 PDE, 7.16.7 Create Crediting Tariffs)

Beyond that it is possible to apply discounts or bonus at bill time. These can be based on accumulated amounts (e.g. tiers, thresholds) of rated events. Discounts for postpaid accounts affect the total invoice amount. Whereas the calculated credit of bonuses and bill-time discounts of prepaid accounts is applied to the real-time balances and can be consumed for future events (depending on the validity of the credit).
(GOLD R2.4 PDE, 7.16.11 Create Bill-time Discounts, 7.16.12 Create Bill-time Bonus)

Explanatory

Reserved for future use.

Mandatory

Reserved for future use.

Optional

Reserved for future use.

Interactions

Reserved for future use.

4.1.3.3 Level 3: 1.1.1.13.3 - Aggregate Items For Charging

Table 4.32 Level 3 - 1.1.1.13.3 Aggregate Items For Charging

LEVEL 3 PROCESS MAPPING DETAILS 1.1.1.13.3 Aggregate Items For Charging
Brief Description Manages the accumulation of items that may be used in the selection of a value or in calculation of a rate/discount. **Extended Description** This process is responsible for accumulating contributing items, which can be quantities, values (monetary or other) or both. Aggregation can occur over time or can be initiated to gather a "snapshot" of the items at a point in time. The aggregated items may be used in Perform Rating or Apply Rate Level Discounts to determine the applicable price or discount and may further be used as a quantity in the calculation of a rate or discount. **A** Orga Systems´ product GOLD manages the accumulation of contributing items such as events, duration etc. as related part of the calculation process of real-time discounts and credits as well as of bill-time discounts and credits. Process details of real-time and bill-time discounts and credits are given in the mapping table for process Level 3 - 1.1.1.13.2 Apply Rate Level Discounts. Please see there for the mapping of business processes with GOLD. (GOLD R2.4 PDE, 7.16.8 Create Discount Tariffs) (GOLD R2.4 PDE, 7.16.7 Create Crediting Tariffs) (GOLD R2.4 PDE, 7.16.11 Create Bill-time Discounts, 7.16.12 Create Bill-time Bonus) **Explanatory** Reserved for future use. **Mandatory** Reserved for future use. **Optional** Reserved for future use. **Interactions** Reserved for future use.

4.1.3.4 Level 3: 1.1.1.13.4 - Manage Customer Charging Hierarchy

Table 4.33 Level 3 - 1.1.1.13.4 Manage Customer Charging Hierarchy

LEVEL 3 PROCESS MAPPING DETAILS 1.1.1.13.4 Manage Customer Charging Hierarchy
Brief Description Managing the charging relationships among subscribers. **Extended Description** Customer hierarchies are commonly used for corporate customers, family plans or other type of affinity groups. This process manages the charging relationships among subscribers, e.g. sharing, inheriting or restricting balances, price plans and discounts. Thereby assuring that a charge is added to or subtracted from the correct (sub-)account balance. **A** Large Hierarchies, e.g. for corporate customers With GOLD, telecommunication operators can launch competitive price plans and tariff options for large corporate and governmental organizations. Therefore GOLD offers virtually unlimited hierarchical accounts (each with or without dedicated payment responsibility), cost control features, budget warning notification support and per service payment options based on pre- and postpaid payment mechanisms. In this case “corporate prepaid” services can be capped budget funds that – without extra authorization – cannot be exceeded. (GOLD R2.4 PDE, 8.5 Hierarchical Billing for Corporate Customers) It is possible to create account hierarchies with parent and child accounts. An example of an account hierarchy is given in Figure 37: Example of an Account Hierarchy. (GOLD R2.4 PDE, 6.2 Accounts) Hierarchies for Closed User Groups, e.g. for families With GOLD, telecommunication operators can launch attractive price plans with bonuses and discounts for CUGs (closed user groups) like families. These offerings can include convergent prepaid/postpaid payment options and shared bundles. The payment responsibility can be flexibly defined at any level within the family (hierarchical accounts). This allows to consolidate and accumulate charges at a higher level within the CUG. In addition to that shared balances allow to introduce bolt-on bundles or shared family bundles for free of charge services and bundled offerings that can be used by all family members. (GOLD R2.4 PDE, 8.1 Convergent Lifestyle Billing & Bundles for Families) A closed user group (CUG) is usually associated with a specific customer and all the subscriptions belonging to the customer are eligible for inclusion in the CUG. In GOLD the

CUG feature is based on the group component feature for communities. Therefore the community group components are used also for the definition of CUGs. Balances can be shared by those CUG members, which are in the account hierarchy below the account holding the shared balance.

(GOLD R2.4 PDE, 7.23 Closed User Groups)

Explanatory

Reserved for future use.

Mandatory

Reserved for future use.

Optional

Reserved for future use.

Interactions

Reserved for future use.

Table 4.34 Level 4 - 1.1.1.13.4.1 Calculate Service/Product Value

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.13.4.1 Calculate Service/Product Value
Brief Description Calculate the value of the service/product, before, during or after the rendering of the service **Extended Description** The purpose of Calculate Service/Product Value process is to calculate the value of the service/product, before, during or after the rendering of the service, based on parameters of the request (type, quantity, etc.), parameters of the customer/subscriber (tariffs, price plans, accumulated usage, contracts, etc.) and other parameters (time-of-day, taxes, etc.). The same request maybe rated differently for different subscribers based on their purchased offers or service agreements. **A** 1.1.1.13.4.1 is a duplicate process description of L3: Perform Rating. Please see there for the mapping of business processes with GOLD. **Explanatory** Reserved for future use. **Mandatory**

Reserved for future use.

Optional

Reserved for future use.

Interactions

Reserved for future use.

4.1.3.5 Supporting Evidence References (Works Cited)

GOLD R2.4 PDE Product Description GOLD R2.4 R1.00

4.1.3.6 Level 2: 1.1.1.13 - Charging - Scores

Table 4.35 Level 2: 1.1.1.13 - Charging - Scores

Level 2: 1.1.1.13 - Charging [4/4]		
Level 3 Process	**Level 4 Process**	**L4/L3 Process Score**
1.1.1.13.1 - Perform Rating		**5**
1.1.1.13.2 - Apply Rate Level Discounts		**5**
1.1.1.13.3 - Aggregate Items For Charging		**5**
1.1.1.13.4 - Manage Customer Charging Hierarchy		**5**
1.1.1.13.4.1 Calculate Service/Product Value		100%

4.1.4 Level 2: 1.1.1.14 - Manage Billing Events

4.1.4.1 Level 3: 1.1.1.14.1 - Enrich Billing Events

Table 4.36 Level 4 - 1.1.1.14.1.1 Add Billing Event Data

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.14.1.1 Add Billing Event Data
Brief Description Add data to the records from sources such as customer, product, or other reference data to augment the billing event records. **Extended Description** The purpose of Add Billing Event Data process is to add data to the records from sources such as customer, product, or other reference data to augment the billing event records. This process is responsible for enriching billing events with additional data which is not provided by or known by services providing the billing events, but needed by other billing processes. An example of such data is service to product mapping information and subscriber identity to customer mapping information. Data can be fetched from internal configuration or be looked up in data sources. Hence this process is also responsible for obtain additional data s from corresponding data sources based on each billing events record information. **Explanatory** An example of such data is service to product mapping information and subscriber identity to customer mapping information. Data can be fetched from internal configuration or be looked up in data sources. **Mandatory** The purpose of Add Billing Event Data process is to add data to the records from sources such as customer, product, or other reference data to augment the billing event records. This process is responsible for enriching billing events with additional data which is not provided by or known by services providing the billing events, but needed by other billing processes. Hence this process is also responsible for obtaining additional data from corresponding data sources based on each billing events record information. **A** In Orga Systems' product GOLD the Real-time Environment (RTE) is the entry point for event data provided by the network elements. These events may be processed offline (post-event processing of CDRs) or online (real-time processing of IN requests). The RTE mediation components are responsible for decoding and normalization of events to its internal format and optionally enrich the events with additional information derived from an MNP datastore. Mediation includes the following steps: • Conversion of incoming data into XML format • Normalization of data, e.g. the dialed numbers are transformed into consistent format • Zone mapping, i.e. mapping of location information to call zones

(GOLD R2.4 PDE, 3.1.5 CDR Interface, 7.1.1 Post-event Mediation)
(GOLD R2.4 PDE, 3.2.3 Online Charging (OLC) Interface, 7.1.2 Real-time Mediation)
(GOLD R2.4 PDE, 7.1.4 Mobile Number Portability Database)

The enrichment of the events with corresponding account and product specific data is performed as part of the rating process.

(GOLD R2.4 PDE, 7.2.1 Guiding to Single Target Account)

In predefined regular intervals the RTE executes recurring operations associated with the products, e.g. the renewal of recurring bundles or applies recurring charges. The generated event is provided to other GOLD modules for further processing and similarly enriched by the rating process.

(GOLD R2.4 PDE, 7.4.8 Recurring Operations)

The RTE also applies non-recurring charges or non-recurring bundles that are triggered by external business systems via the GOLD Standard Interface. The generated event is provided to other GOLD modules for further processing and similarly enriched by the rating process.

(GOLD R2.4 PDE, 7.16.10 Create One-time Fees)
(GOLD Standard IF R2.4, 4.10.13 E510 Charge One Time Fee)

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.37 Level 4 - 1.1.1.14.1.2 Assign Billing Event Price

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.14.1.2 Assign Billing Event Price
Brief Description Assign a price to a billing event without consideration of specific product or customer information. The assigned price may be used to enrich the billing event record. **Extended Description** The purpose of Assign Billing Event Price process is to assign a price to a billing event without consideration of specific product or customer information. The assigned price may be used to enrich the billing event record. This process performs static rating of service events without considering customer or product information. As an example, originating on-net call CDRs are priced at $1 per started minute during peak hours, without considering customer data or agreements for the

involved user which could affect the final price paid.

This process may assign a price to a billing event automatically according to pre-configured rules, or manually.

Explanatory

The assigned price may be used to enrich the billing event record. As an example, originating on-net call CDRs are priced at $1 per started minute during peak hours, without considering customer data or agreements for the involved user which could affect the final price paid.

Mandatory

The purpose of Assign Billing Event Price process is to assign a price to a billing event without consideration of specific product or customer information. This process performs static rating of service events without considering customer or product information. **A**

The GOLD module RTE does not separate the “real” pricing from such kind of theoretical pricing in different steps. In addition to the customer specific rating that considers all products and balances of an account it is possible to enable alternate rating for potential cost calculation. The alternate rating is based on a standard tariff and it ignores discounts and specific bonus balances.
Only the “real” cost is charged to the account’s balances. However, the rated event report contains both rating results.

(GOLD R2.4 PDE, 7.4.2 Potential Cost Rating)

Depending on the business scenario that requires such static rating also other options are possible in GOLD. For example for the calculation of retail and wholesale charges of the same usage event it is possible to enable the guiding feature of the RTE.

(GOLD R2.4 PDE, 7.2.2 Guiding to Multiple Target Accounts)
(GOLD R2.4 PDE, 8.8 Revenue Sharing & Partner Billing)
Optional

This process may assign a price to a billing event automatically according to pre-configured rules, or manually.

Interactions

Not used for this process element

4.1.4.2 Level 3: 1.1.1.14.2 - Guide Billing Events

Table 4.38 Level 4 - 1.1.1.14.2.1 Ensure Billing Event Usage

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.14.2.1 Ensure Billing Event Usage
Brief Description

Ensure that the event records used in the billing process relate to the correct customer billing account and products.

Extended Description

The purpose of Ensure Event Record Usage process is to ensure that the event records used in the billing process relate to the correct customer billing account and products. A specific event record may be related to multiple customer billing accounts and subscribed products.

Explanatory

A specific event record may be related to multiple customer billing accounts and subscribed products.

Mandatory

The purpose of Ensure Event Record Usage process is to ensure that the event records used in the billing process relate to the correct customer billing account and products. **A**

In Orga Systems' product GOLD the Real-time Environment (RTE) is responsible for guiding usage and other types of events to the corresponding accounts.
In some guiding scenarios involving revenue and cost sharing, the same event record may be assigned to multiple accounts.

(GOLD R2.4 PDE, 7.2.1 Guiding to Single Target Account)
(GOLD R2.4 PDE, 7.2.2 Guiding to Multiple Target Accounts)

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.39 Level 4 - 1.1.1.14.2.2 Distribute Billing Event

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.14.2.2 Distribute Billing Event
Brief Description Distribute billing event records to other processes. **Extended Description** The purpose of Distribute Billing Event process is to distribute billing events to other processes which need access to billing events. As a typical example, billing events are transferred to Charging process for event/product charging via this process. In general, the billing events are distributed in the specific format, e.g. plain text

format, binary format, XML format. This process is also responsible for recording distribution logs to avoid duplicated billing event distribution.

Explanatory

As a typical example, billing events are transferred to Charging process for event/product charging via this process. In general, the billing events are distributed in the specific format, e.g. plain text format, binary format, XML format.

Mandatory

The purpose of Distribute Billing Event process is to distribute billing events to other processes which need access to billing events. **A**

In Orga Systems' product GOLD the Real-time Environment (RTE) is the entry point for event data provided by the network elements and responsible for mediation and rating of billing events.
The mediation components of the RTE convert the network events into the internal XML format of GOLD and forward these via an online interface to the Convergent Rating Engine (CRE) of the RTE.

(Gold Architecture, CDR IF / OLC IF)
(GOLD R2.4 PDE, 7.1.1 Post-event Mediation)
(GOLD R2.4 PDE, 7.1.2 Real-time Mediation)

For GOLD installations with a large customer base it is possible to distribute account data held by the RTE on multiple nodes to provide an optimal load balancing. The RTE module assures that rating events are forwarded to the correct RTE node to be processed.

(GOLD R2.4 PDE, 9.2, Multiple Rating Node Technology)

After successful rating the rated event reports are collected in files and provided to the GOLD module Core Billing Framework (CBF) for further processing. CBF validates, transforms and enriches the events with further customer and billing specific information and stores them as unbilled Event Detail Records (EDRs) in the CBF database.

(Gold Architecture, Bill Event IF)
(GOLD R2.4 PDE, 7.5.1 Event Import)

These EDRs are used as input for further GOLD modules, such as the Business Intelligence Support Module (BISM) with its Reporting Database or other external business systems.
The BISM is the central framework and staging area of GOLD for providing reporting data to external business intelligence and data warehousing systems. It extracts data from the source databases and loads it into the separate Reporting database to decouple reporting from the operational systems.

(Gold Architecture, RDS IF)
(GOLD R2.4 PDE, 2.1.5 Business Intelligence Support Module (BISM))

Besides that it is possible to extract rated EDRs to an external event archive or an external billing system (in case GOLD operates as an adjunct rating engine to another billing

system).

(Gold Architecture, Event IF)
(GOLD R2.4 PDE, 7.5.2 Event Export)

This process is also responsible for recording distribution logs to avoid duplicated billing event distribution. **A**

During the import of events the RTE as well as the CBF module, both support mechanisms to detect duplicate files or events.

(GOLD R2.4 PDE, 7.1.3 Duplicate Event Detection)

In addition RTE and CBF can be configured to generate metrics on a daily basis for the different processing steps. The network operator can use these control totals as input for controlling or revenue assurance.

(GOLD R2.4 PDE, 7.21 Revenue Assurance Metrics)

Optional

Not used for this process element

Interactions

Not used for this process element

4.1.4.3 Level 3: 1.1.1.14.3 - Mediate Billing Events

Table 4.40 Level 4 - 1.1.1.14.3.1 Edit Billing Event

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.14.3.1 Edit Billing Event
Brief Description Edit the data record for recipient applications. **Extended Description** This process is responsible for editing billing events to adapt to the contents expected by receiving processes and applications. This includes examining individual fields in billing events, modifying the contents of individual fields in billing events and removing unwanted data and fields, identifying billing event type. Additionally, this process is also responsible for billing events consolidation, billing event splitting, billing events correlation and duplicated billing events deletion if necessary. **Explanatory**

Not used for this process element

Mandatory

This process is responsible for editing billing events to adapt to the contents expected by receiving processes and applications. This includes examining individual fields in billing events, modifying the contents of individual fields in billing events and removing unwanted data and fields, identifying billing event type. **A**

In Orga Systems' product GOLD the components of the Real-time Environment (RTE) convert, transform and enrich the billing events to the content expected by charging and billing.
The mediation components are largely configurable as to what kind of usage events can be supported and how their content is represented internally. The mediation is based on a configurable plug-in mechanism for decoding events of an arbitrary number of input systems and formats.
The mediation processes first decode usage events from their native format into a GOLD internal format, then normalize events (e.g. dialed numbers are converted into a consistent format) and finally perform zone mapping (e.g. location information of the event is mapped to configurable call zones).

(GOLD R2.4 PDE, 3.1.5 CDR Interface, 7.1.1 Post-event Mediation)
(GOLD R2.4 PDE, 3.2.3 Online Charging (OLC) Interface, 7.1.2 Real-time Mediation)

The subsequent guiding process which is part of the Convergent Rating Engine (CRE) of the RTE identifies and adds corresponding account and product specific data to the event before the service usage is rated.

(GOLD R2.4 PDE, 7.2.1 Guiding to Single Target Account)

After the rating process in RTE has performed its task there is an Event Formatter and Dispatcher (EFD) process which is used to convert, transform and enrich the billing events in preparation for the tasks performed in the Core Billing Framework (CBF).

(Gold Architecture, EFD)
(GOLD R2.4 PDE, 2.1.7 Real-time Environment (RTE))

Additionally, this process is also responsible for billing events consolidation, billing event splitting, billing events correlation and duplicated billing events deletion if necessary. **A**

The GOLD module RTE supports consolidation of partial usage events.
Events received in offline mode after service usage can be processed individually or merged based on a unique key which can be a combination of any of the fields in the input event, e.g. calling number + MSC identifier + call reference number. The consolidation feature supports processing of "out of order" events which are received in a sequence other than the real event. Furthermore it provides a mechanism to detect gaps and automatically correct (resp. automatically create) missing partial events. The consolidation for a service is complete when the final partial event is received or after a configurable delay time.
Real-time rating is always based on consolidated events. The consolidated events are then rated and reported as single events.

(Concept Event Consolidation, 1.1 Implemented Requirements)

Billing event splitting is part of RTE's guiding functionality, which is guiding of event data to the corresponding account. In some guiding scenarios involving revenue and cost sharing, the billing event may be relevant for multiple accounts and needs to be rated twice.
This results in multiple rated event records derived from the same input billing event.

(GOLD R2.4 PDE, 7.2.2 Guiding to Multiple Target Accounts)

The GOLD modules RTE and CBF support mechanisms to detect and reject duplicate files or events.

(GOLD R2.4 PDE, 7.1.3 Duplicate Event Detection)

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.41 Level 4 - 1.1.1.14.3.2 Reformat Billing Event

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.14.3.2 Reformat Billing Event
Brief Description Reformat the data record for recipient applications. **Extended Description** The purpose of Reformat Billing Event process is to reformat billing events to adapt to the format expected by receiving processes and applications. This includes examining individual fields in billing events and translating billing events from one format to another Additionally, this process is also responsible for maintenance the input and output format template. **Explanatory** Not used for this process element **Mandatory** The purpose of Reformat Billing Event process is to reformat billing events to adapt to the format expected by receiving processes and applications. This includes examining individual fields in billing events and translating billing events from one format to another. **A** The mediation components and the Event Formatter and Dispatcher (EFD) component of GOLD are responsible for reformatting usage events. For further details please refer to the

mapping details in the previous process L4: Edit Billing Event.

Additionally, this process is also responsible for maintenance the input and output format template.
M

The operator specific plug-ins for the Post-Event Gateway (PEG) which performs the decoding of usage events of various formats are provided as dynamic C libraries as part of the GOLD installation.

(GOLD R2.4 PDE, 3.1.5 CDR Interface)

The dynamic parts of the mediation configuration, e.g. the zone mapping tables can be maintained using GOLD's Configuration Management Component (CMC) GUI.

(GOLD R2.4 PDE, 7.16.15 Mediation Gateway Configuration)

Optional

Not used for this process element

Interactions

Not used for this process element

4.1.4.4 Level 3: 1.1.1.14.4 - Report Billing Event Records

Table 4.42 Level 4 - 1.1.1.14.4.1 Generate Billing Event Report

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.14.4.1 Generate Billing Event Report
Brief Description Generate reports on billing event records based on requests from other processes. **Extended Description** The purpose of the Generate Billing Event Report process is to generate reports on billing event records. This process produces reports that may identify abnormalities, which may be caused by fraudulent activity or related to customer complaints. **Explanatory** Not used for this process element **Mandatory** The purpose of the Generate Billing Event Report process is to generate reports on billing event records. This process produces reports that may identify abnormalities, which may be caused by fraudulent activity or related to customer complaints. **A** External systems such as Revenue Assurance and Fraud Management can be provided

with configurable operational reports based on the data from the Core Billing Framework (CBF) database.
The Interface Template Framework (ITF) is used to configure the format and content of these reports.

(GOLD R2.4 PDE, 7.11 ITF / ITDL for Extraction of Billing Data)

Furthermore the rating and billing modules of GOLD can be configured to generate metrics on a daily basis for the different processing steps. The network operator can use these control totals as input for controlling or revenue assurance.

(GOLD R2.4 PDE, 7.21 Revenue Assurance Metrics)

The Business Intelligence Support Module (BISM) is the central reporting framework and staging area of GOLD for providing reporting data to external business intelligence and data warehousing (DWH) systems. It extracts data from the source databases of several GOLD modules and loads it into the separate Reporting database to decouple reporting from the operational systems.
The DWH system, which is not included in the product deliverables of GOLD, provides multi-dimensional data structures according to the custom purposes of MIS (management information systems) reporting for Decision Support Systems and of operational reports. Orga Systems´ Consulting Services provide integration of the BISM with DWH systems and analytical reporting or data mining products.

(GOLD R2.4 PDE, 2.1.5 Business Intelligence Support Module (BISM))

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.43 Level 4 - 1.1.1.14.4.2 Investigate Billing Event Related Problem

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.14.4.2 Investigate Billing Event Related Problem
Brief Description Investigate problems related to billing event records. **Extended Description** The purpose of the Investigate Billing Event Related Problem process is to investigate problems related to billing event records. Where reporting indicates problems with billing event records such as data format errors, configuration problems, system or network problems this process initiates and manages an investigation and follow-up of the indicated problems.

Explanatory

Not used for this process element

Mandatory

The purpose of the Investigate Billing Event Related Problem process is to investigate problems related to billing event records. Where reporting indicates problems with billing event records such as data format errors, configuration problems, system or network problems this process initiates and manages an investigation and follow-up of the indicated problems. **M**

For the investigation of potential problems each GOLD module provides log files for manual analysis.

Event records that cannot be processed due to format errors are stored in separate files in dedicated directories for manual investigation. After correction the files can be resubmitted to continue the processing. The RTE module can be set up to forward failed rating events to the BAS module, in order to store them as problem notes in the BAS DB.

(GOLD R2.4 PDE, 7.4.6 Rejected Events)
(GOLD R2.4 PDE, 7.5.1 Event Import)

The problem notes are accessible and can be searched for via the GOLD Standard interface. For the analysis of problems related with already rated and possibly billed events GOLD provides online access to the EDRs via the GOLD Standard Interface.

(GOLD R2.4 PDE, 7.18 Notification Management)
(GOLD Standard IF R2.4, 4.19.3.2 G015 Search Problem Notes)
(GOLD R2.4 PDE, 7.6 Query Event Details)
(GOLD Standard IF R2.4, 4.8.5 D510 Search Event Records)

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.44 Level 4 - 1.1.1.14.4.3 Support Billing Event Related Process

LEVEL 4 PROCESS MAPPING DETAILS 1.1.1.14.4.3 Support Billing Event Related Process
Brief Description Support other processes such as customer review of billing events (pre-billing and post-billing). **Extended Description** The purpose of the Support Billing Event Related Process process is to support other processes

which use or consume billing events. This process manages report requests from other processes. An example of such a process is customer review of billing events (pre-billing and post-billing).

Explanatory

An example of such a process is customer review of billing events (pre-billing and post-billing).

Mandatory

The purpose of the Support Billing Event Related Process process is to support other processes which use or consume billing events. **AM**

External systems, such as Customer Care or Customer self-care, may query rated and unbilled / billed events via the GOLD Standard Interface.

(GOLD R2.4 PDE, 7.6 Query Event Details)
(GOLD Standard IF R2.4, 4.8.5 D510 Search Event Records)

Support for other systems such as Revenue Assurance is provided by metrics, operational reports or the Reporting interface. For details please refer to the mapping details in process L4: Generate Billing Event Report.

Optional

Not used for this process element

Interactions

This process manages report requests from other processes.

4.1.4.5 Supporting Evidence References (Works Cited)

GOLD R2.4 PDE	Product Description GOLD R2.4 R1.00.pdf; Product & Feature Description for GOLD R2.4
GOLD Standard IF	IFS_OPSC_Gold_Standard_IF_R2.4_V1.1.pdf; Interface specification for the GOLD Standard Interface
Gold Architecture	POSTER_OPSC_Gold_Architecture_R2.4_V1.0.pdf; GOLD Architecture Diagram
Concept Consolidation	CRE Event Consolidation.pdf; Concept for event consolidation in GOLD RTE

4.1.4.6 Level 2: 1.1.1.14 - Manage Billing Events- Scores

Table 4.45 Level 2: 1.1.1.14 - Manage Billing Events- Scores

Level 2: 1.1.1.14 - Manage Billing Events [4/4]		
Level 3 Process	**Level 4 Process**	**L4/L3 Process Score**
1.1.1.14.1 - Enrich Billing Events		**5**
	1.1.1.14.1.1 Add Billing Event Data	100%
	1.1.1.14.1.2 Assign Billing Event Price	100%
1.1.1.14.2 - Guide Billing Events		**5**
	1.1.1.14.2.1 Ensure Billing Event Usage	100%
	1.1.1.14.2.2 Distribute Billing Event	100%
1.1.1.14.3 - Mediate Billing Events		**5**
	1.1.1.14.3.1 Edit Billing Event	100%
	1.1.1.14.3.2 Reformat Billing Event	100%
1.1.1.14.4 - Report Billing Event Records		**5**
	1.1.1.14.4.1 Generate Billing Event Report	100%
	1.1.1.14.4.2 Investigate Billing Event Related Problem	100%
	1.1.1.14.4.3 Support Billing Event Related Process	100%

4.1.5 Level 2: 1.1.1.15 - Manage Balances

4.1.5.1 Level 3: 1.1.1.15.1 - Manage Balance Containers

Table 4.46 Level 3 - 1.1.1.15.1 Manage Balance Containers

LEVEL 3 PROCESS MAPPING DETAILS 1.1.1.15.1 Manage Balance Containers
Brief Description Hold and maintain the different balances that a customer and/or a subscriber may have. **Extended Description** This process manages the balance containers assigned to a customer and/or subscriber and is used to keep track of usage events, providing input for decision making processes (such as service or product authorization) by means of the balance policies. **A** Introductory remark: In the context of 1.1.1.15.1 Manage Balance Containers the term “containers” is understood as “Accounts” in the terminology of Orga Systems´ product GOLD. The Account model of GOLD supports multiple account types such as prepaid, postpaid and convergent, and all accounts can hold multiple balances such as unit credit and/or technical ones. (GOLD R2.4 PDE, 6.2 Accounts) The process of balance containers (i.e. Accounts in GOLD) assignment to a customer and/or subscriber is corresponding in GOLD to the “Product Selling” process. Products may be assigned to and removed from the accounts and subscriptions. In the GOLD terminology the products that are assigned to accounts are called “sold products”. (GOLD R2.4 PDE, 6.5 Products) In reference to the requested process for “providing input for decision making processes by means of the balance policies” the according GOLD process steps are give in the mapping of 1.1.1.15.3 Manage Balance Operations. The containers include monetary and non-monetary balances (or shared) and are used as prepaid balances (enabling realtime service or product authorization), postpaid balances (in conjunction with an Account-Receivables [AR] application). **A** The balance model of GOLD is described in a previous chapter i.e. 1.1.1.15 Manage Balances. (GOLD R2.4 PDE, 6.10 Account Balances) (GOLD R2.4 PDE, 6.10.4 Balance Pockets and Pocket Labels) Examples of non-monetary balances and allowances are: free minutes, WAP-only quota, etc. **A** An example for non-monetary balances (in this case a free SMS balance) is given in the cited document. (GDE_Gold, 4.8 Designing Talk Weekend Plus tariff) **Explanatory**

Reserved for future use. **Mandatory** Reserved for future use. **Optional** Reserved for future use. **Interactions** Reserved for future use.

4.1.5.2 Level 3: 1.1.1.15.2 - Manage Balance Policies

Table 4.47 Level 3 - 1.1.1.15.2 Manage Balance Policies

LEVEL 3 PROCESS MAPPING DETAILS 1.1.1.15.2 Manage Balance Policies
Brief Description Executing policies per balance or balance type. **Extended Description** Balance policies are rules that describe how balance affecting events are to be handled. This is done by comparing the value of each event against criteria such as the following: - a minimum allowable balance limit (e.g. balance must remain above zero), **A** The balance policies configuration of GOLD supports different rules for allowable limits which are represented by configuration fields such as Min. Credit (default = 0), Negative, Credit Limit, Spending Limit. Descriptions are given in the user manual of the CMC (UMA-CMC). (UMA_CMC, 8.2.2 Data) - balance expiration dates, **A** Additionally there are Balance Pockets and Pocket Labels available, which allow to manage a certain validity period of a balance (Balance Pocket) and to identify a specific portion of a balance (Pocket Label). (GOLD R2.4 PDE, 6.10.4 Balance Pockets and Pocket Labels) - balance thresholds actions and notifications and **A** The limit component of the GOLD product model can control threshold based actions and notifications e.g. for spending limit and credit limit use cases. It supports hard limits and soft limits for online charging authorization in combination with an optional list of threshold levels to trigger notifications.

(GOLD R2.4 PDE, 6.5.5 Limit component)

- roll-over & cyclic policies. **A**

Rollover Rules and rollover thresholds are used in GOLD e.g. for real-time bonus use cases.
(GOLD R2.4 PDE, 7.4.9 Real-time Bonus)
(GOLD R2.4 PDE, 7.16.7 Create Crediting Tariffs)

An example for Rollover Rules is given in the user manual of the CMC (UMA-CMC).
(UMA_CMC, 6.4.2.2 Adding a Crediting Tariff)

Cyclic Policies on balances in GOLD are applied by Recurring Operations (ROPs). Recurring operation components are used to perform periodic changes to the balances in the RTE. This flexible mechanism can be used e.g. to setup recurring bundles or for recurring charges processed in real-time or to reset counting balances for real-time bonuses.
(GOLD R2.4 PDE, 7.4.8 Recurring Operations)

An example for Recurring Operations (ROPs) is given in the user manual of the CMC (UMA-CMC).
(UMA_CMC, 6.4.2.3 Adding a Recurring Operation)

Explanatory

Reserved for future use.

Mandatory

Reserved for future use.

Optional

Reserved for future use.

Interactions

Reserved for future use.

4.1.5.3 Level 3: 1.1.1.15.3 - Manage Balance Operations

Table 4.48 Level 3 - 1.1.1.15.3 Manage Balance Operations

LEVEL 3 PROCESS MAPPING DETAILS 1.1.1.15.3 Manage Balance Operations
Brief Description Allow different operations to be performed on the managed balance. **Extended Description** Balance operations processes the charged events, using balance policies and then guides the results towards the relevant balance containers. Operations include :

- Reserving amounts from any balance for any session, and crediting unused reservations back into the balance, when a session is released. **A**

Balance operations with reservation handling and guiding are applied by a dedicated processing step of the GOLD rating process. Details of the related process with "reservation mode – IN based" are described in the rating guideline document (GDE_Rating_R2.4).
(GDE_Rating_R2.4_V1.0, 9.1 IN-based Rating)

"Crediting of unused reservations back into the balance, when a session is released" is the standard case of IN-based rating at "Reservation End". At "Reservation End" the recent reservation is released and all events are newly calculated. Reservations of the type "end" in the rating guideline document (GDE_Rating_2.4_V1.0).
(GDE_Rating_2.4_V1.0, 9.1 IN-based Rating)

- Updating balances by applying charges to the balance **A** and credit/debit adjustments. **M**

Application of charges to balances is managed by GOLD.
(GOLD R2.4 PDE, 7.4.5 Charging)

Updates of monetary or non-monetary balances after rating and pricing as well as after discounting are applied by a dedicated processing step of the GOLD rating process. Details are described in the rating guideline document (GDE_Rating_R2.4), see Rating Step 4 for operation type = charge.
(GDE_Rating_R2.4_V1.0, 3.4 Rating Step 4 - Service Rating)

Application of Adjustments to balances controlled by an approval process is managed by GOLD.
(GOLD R2.4 PDE, 7.7 Adjustment)

- Balance queries. **AM**

Balance queries are supported by GOLD, e.g. by API calls A025: Get Realtime Balance Data or K020 Get Offline Balance.
(IFS_OPSC_Gold_Standard_IF_R2.4_V1.1)

- Transferring amounts from one balance to another. **A**
Balance transfers are supported by GOLD, e.g. by API calls E110: Update Balances or E120: Update Multiple Balances.
(IFS_OPSC_Gold_Standard_IF_R2.4_V1.1)

Explanatory

Reserved for future use.

Mandatory

Reserved for future use.

Optional

Reserved for future use.

Interactions

Reserved for future use.

4.1.5.4 Level 3: 1.1.1.15.4 - Authorize Transaction Based on Balance

Table 4.49 Level 3 - 1.1.1.15.4 Authorize Transaction Based on Balance

LEVEL 3 PROCESS MAPPING DETAILS 1.1.1.15.4 Authorize Transaction Based on Balance
Brief Description Manages authorization of service/ product requests based on available balances (monetary or non-monetary) and policies. **Extended Description** This process may include balance reservation and must be performed online. **A** Online Balance reservations are applied by a dedicated processing step of the GOLD rating process. Details are described in the rating guideline document (GDE_Rating_R2.4), see Rating Steps 3 and 4. (GDE_Rating_R2.4_V1.0, 3.3.4 Rating Step 3 - Rule Selection Step 4 - Liquidity Check) In reference to the requested optional balance reservation (“may include”), this case is managed by the same rating steps 3 and 4 of the GOLD rating process. In case that there is no credit on the balance left, the transaction upon the reservation request is rejected. Or, in case of a free event, it is not necessary to perform a reservation request at all. Subsequent balance updates are not required to be done in real-time. In this context a service is provided by the network, e.g. voice call. Product is digital content delivered via the network, e.g. content such as music, games, etc. **A** Balance updates in Orga Systems´ product GOLD are performed in real-time by the GOLD rating process. Updates of monetary or non-monetary balances after rating and pricing as well as after discounting are applied by a dedicated processing step of the GOLD rating process. Details are described in the rating guideline document (GDE_Rating_R2.4), see Rating Step 4 for operation type = charge. (GDE_Rating_R2.4_V1.0, 3.4 Rating Step 4 - Service Rating) Voice and value added services including digital content delivery is authorized by application of the same mechanisms of the GOLD rating process. **Explanatory** Reserved for future use. **Mandatory** Reserved for future use.

Optional

Reserved for future use.

Interactions

Reserved for future use.

4.1.5.5 Supporting Evidence References (Works Cited)

GOLD R2.4 PDE	Product Description GOLD R2.4 R1.00
GDE_Rating_R2.4_V1.0	This document describes how the Convergent Rating Engine of GOLD works. The rating principles are explained using examples. The examples show different rating configurations and explain the corresponding rating steps in detail.
UMA_CMC_R2.4_V1.0	This document explains the product and tariff management within product catalogs using the GUI.
IFS_OPSC_Gold_Standard_IF_R2.4_V1.1	This document describes the API calls usable by external business systems to connect to GOLD.
GDE_OPSC_Gold_R2.4_V1.0	This document describes the different data models and configuration principles of GOLD.

4.1.5.6 Level 2: 1.1.1.15 - Manage Balances - Scores

Table 4.50 Level 2: 1.1.1.15 - Manage Balances - Scores

Level 2: 1.1.1.15 - Manage Balances [4/4]		
Level 3 Process	**Level 4 Process**	**L4/L3 Process Score**
1.1.1.15.1 - Manage Balance Containers		**5**
1.1.1.15.2 - Manage Balance Policies		**5**
1.1.1.15.3 - Manage Balance Operations		**5**
1.1.1.15.4 - Authorize Transaction Based on Balance		**5**

4.2 Level 1: 1.1.2 - Service Management & Operations

4.2.1 Level 2: 1.1.2.5 - Service Guiding & Mediation

4.2.1.1 Level 3: 1.1.2.5.1 - Mediate Service Usage Records

Table 4.51 Level 4 - 1.1.2.5.1.1 Validate Service Usage Record

LEVEL 4 PROCESS MAPPING DETAILS **1.1.2.5.1.1 Validate Service Usage Record**
Brief Description Validate service usage records collected from the resource layer **Extended Description** The purpose of Validate Service Usage Record process is to validate service usage records collected from the resource layer. This process is responsible for collecting the Service Usage Records, filtering out of non-billing relevant Service Usage Records and validating the Service Usage Records and their integrity. For example, checking loss of Service Usage Records, illegal characters in Service Usage Records, invalid field length in Service Usage Records, the service usage duration mismatching to start time and end time. **Explanatory** for example, checking loss of Service Usage Records, illegal characters in Service Usage Records, invalid field length in Service Usage Records, the service usage duration mismatching to start time and end time. **Mandatory** The purpose of Validate Service Usage Record process is to validate service usage records collected from the resource layer. This process is responsible for collecting the Service Usage Records, filtering out of non-billing relevant Service Usage Records and validating the Service Usage Records and their integrity. **A** In Orga Systems' product GOLD the Real-time Environment (RTE) is the entry point for event data provided by the network elements. These events may be processed offline (post-event processing of CDRs) or online (real-time processing of IN requests). The RTE mediation components are responsible for decoding and normalization of events to its internal format. Mediation includes the following steps: • Conversion of incoming data into XML format • Normalization of data, e.g. the dialed numbers are transformed into consistent format • Zone mapping, i.e. mapping of location information to call zones In each of these steps the input data is validated and checked for format errors or completeness. It is also possible to filter special events that are free of charge. **(GOLD R2.4 PDE, 3.1.5 CDR Interface, 7.1.1 Post-event Mediation)**

(GOLD R2.4 PDE, 3.2.3 Online Charging (OLC) Interface, 7.1.2 Real-time Mediation)
Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.52 Level 4 - 1.1.2.5.1.2 Normalize Service Usage Record

LEVEL 4 PROCESS MAPPING DETAILS 1.1.2.5.1.2 Normalize Service Usage Record
Brief Description Normalize service usage records to specific expression format. **Extended Description** The purpose of Normalize Service Usage Record process is to normalize Service Usage Records to specific expression format. Service Usage Records generated by different systems are used distinct expressions for same record data. For example, 10 min voice call can be either expressed by 4 indicators including start time, end time, duration and QoS, or expressed by 3 indicators excluding end time. This process is responsible for unifying all Service Usage Records to specific expression manner. **Explanatory** For example, 10 min voice call can be either expressed by 4 indicators including start time, end time, duration and QoS, or expressed by 3 indicators excluding end time. **Mandatory** The purpose of Normalize Service Usage Record process is to normalize Service Usage Records to specific expression format. Service Usage Records generated by different systems are used distinct expressions for same record data. This process is responsible for unifying all Service Usage Records to specific expression manner. **A** The mediation process of the RTE first decodes usage events (see next process L4: Convert Service Usage Record), then normalizes events (e.g. dialed numbers are converted into a consistent format) and finally performs zone mapping (e.g. location information of the event is mapped to configurable call zones) in order to transform the events to the content expected by the rating process. **(Gold Architecture, CDR IF)** **(GOLD R2.4 PDE, 3.1.5 CDR Interface, 7.1.1 Post-event Mediation)** **Optional** Not used for this process element

Interactions

Not used for this process element

Table 4.53 Level 4 - 1.1.2.5.1.3 Convert Service Usage Record

LEVEL 4 PROCESS MAPPING DETAILS
1.1.2.5.1.3 Convert Service Usage Record

Brief Description

Convert service usage records to specific record format.

Extended Description

The purpose of Convert Service Usage Record process is to convert Service Usage Records to specific record format. The Service Usage Records are collected from different upstream systems and stored in different file formats. This process is responsible for identifying the data formats of collected Service Usage Records and changing them to specific common data format for downstream system using. This process is also responsible for consolidating multiple Service Usage Records and producing more than one records from single Service Usage Record for varied billing requirements.

Explanatory

The Service Usage Records are collected from different upstream systems and stored in different file formats.

Mandatory

The purpose of Convert Service Usage Record process is to convert Service Usage Records to specific record format. This process is responsible for identifying the data formats of collected Service Usage Records and changing them to specific common data format for downstream system using. **A**

The mediation component of the RTE converts the network events from their native format into the internal XML format of GOLD and forwards these via an online interface to the Convergent Rating Engine (CRE) of the RTE.
The CDR Interface is largely configurable as to what kind of usage events can be supported and how their content is represented internally. It is based on a configurable plug-in mechanism for decoding events of an arbitrary number of input systems and formats.

(Gold Architecture, CDR IF)
(GOLD R2.4 PDE, 3.1.5 CDR Interface, 7.1.1 Post-event Mediation)

This process is also responsible for consolidating multiple Service Usage Records and producing more than one records from single Service Usage Record for varied billing requirements. **A**

The RTE performs consolidation of partial usage events as part of the rating process. Events can be merged based on a unique key which can be a combination of any of the fields in the input event, e.g. calling number + MSC identifier + call reference number.

The consolidation feature supports processing of “out of order” events which are received in a sequence other than the real event. Furthermore it provides a mechanism to detect gaps and automatically correct (resp. automatically create) missing partial events.
The consolidation for a service is complete when the final partial event is received or after a configurable delay time.
The consolidated events are then rated and reported as single events.

(Concept Event Consolidation, 1.1 Implemented Requirements)

Event splitting is part of RTE’s guiding functionality, which is guiding of event data to the corresponding account. In some guiding scenarios involving revenue and cost sharing, the billing event may be relevant for multiple accounts and may need to be rated twice.
This results in multiple rated event records derived from the same input event.

(GOLD R2.4 PDE, 7.2.2 Guiding to Multiple Target Accounts)

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.54 Level 4 - 1.1.2.5.1.4 Correlate Service Usage Record

LEVEL 4 PROCESS MAPPING DETAILS 1.1.2.5.1.4 Correlate Service Usage Record
Brief Description Correlate collected service usage records. **Extended Description** The purpose of Correlate Service Usage Record process is to correlate collected service usage records. Since the Service Usage Records are collected from different upstream system, sometime more than one Service Usage Records store same service consumption. In order to resolve this case, this process is responsible for identifying the correlative Service Usage Records and associating them together for downstream system use. **Explanatory** Since the Service Usage Records are collected from different upstream system, sometime more than one Service Usage Records store same service consumption. **Mandatory** The purpose of Correlate Service Usage Record process is to correlate collected service usage

records. In order to resolve this case, this process is responsible for identifying the correlative Service Usage Records and associating them together for downstream system use. **A**

Correlation of events is performed as part of the consolidation process as described in previous process L4: Convert Service Usage Record.

Optional

Not used for this process element

Interactions

Not used for this process element

Table 4.55 Level 4 - 1.1.2.5.1.5 Remove Duplicate Service Usage Record

LEVEL 4 PROCESS MAPPING DETAILS 1.1.2.5.1.5 Remove Duplicate Service Usage Record
Brief Description Remove service usage records. **Extended Description** The purpose of Remove Service Usage Record process is to remove any duplicate usage records that have already been processed or to achieve service usage records according to Service Provider's policy. This process includes detect duplicate records and removing them from billing process. The duplication detection is usually by checking the values of the key fields of Service Usage Records with combined criteria. Achieving service usage records is normally happened when the records are no need for further billing process. **Explanatory** The duplication detection is usually by checking the values of the key fields of Service Usage Records with combined criteria. Achieving service usage records is normally happened when the records are no need for further billing process. **Mandatory** The purpose of Remove Service Usage Record process is to remove any duplicate usage records that have already been processed or to achieve service usage records according to Service Provider's policy. This process includes detect duplicate records and removing them from billing process. **A** During the import of usage events the RTE supports mechanisms to detect and reject duplicate files or events. The system stores each processed usage record with a unique id that is calculated based on CDR attributes. For each new usage record the system checks, if the corresponding id is already present in the database. The files with duplicate records are stored in dedicated directories.

(GOLD R2.4 PDE, 7.1.3 Duplicate Event Detection)
Optional

Not used for this process element

Interactions

Not used for this process element

4.2.1.2 Level 3: 1.1.2.5.3 - Report Service Usage Records

Table 4.56 Level 3 - 1.1.2.5.3 Report Service Usage Records

LEVEL 3 PROCESS MAPPING DETAILS 1.1.2.5.3 Report Service Usage Records
Brief Description Generate reports on usage records based on requests from other processes **Extended Description** The purpose of the Report Service Usage Record processes is to generate reports on service usage records based on requests from other processes. These processes produce reports that may identify abnormalities, which may be caused by fraudulent activity or related to customer complaints. **A** The Orga Systems' products SCP and NGCP provide History and Fall Back CDRs which include information like Service Type, A/B-party, Duration, etc. The Fall Back CDRs can be used to rate service usage in case of downtime of the Online Charging System. The History CDRs are also used for Data Warehousing and Statistics, Revenue Assurance. **(SCP R2.6 OMA, Chapter 4 Processes)** **(NGCP R3.3 UMA, Chapter 3 Services)** The rating and billing modules of GOLD can be configured to generate metrics on a daily basis for the different processing steps. The network operator can use these control totals as input for controlling or revenue assurance. **(GOLD R2.4 PDE, 7.21 Revenue Assurance Metrics)** External systems such as Revenue Assurance and Fraud Management can be provided with configurable operational reports based on the rated usage event data stored in the Core Billing Framework (CBF) database of Orga System's product GOLD. The Interface Template Framework (ITF) is used to configure the format and content of these reports. **(GOLD R2.4 PDE, 7.11 ITF / ITDL for Extraction of Billing Data)** The Business Intelligence Support Module (BISM) is the central reporting framework and staging area of GOLD for providing reporting data to external business intelligence and data

warehousing (DWH) systems. It extracts data from the source databases of several GOLD modules and loads it into the separate Reporting database to decouple reporting from the operational systems.
The DWH system, which is not included in the product deliverables of GOLD, provides multi-dimensional data structures according to the custom purposes of MIS (management information systems) reporting for Decision Support Systems and of operational reports.
Orga Systems´ Consulting Services provide integration of the BISM with DWH systems and analytical reporting or data mining products.

(GOLD R2.4 PDE, 2.1.5 Business Intelligence Support Module (BISM))

Explanatory

Reserved for future use.

Mandatory

Reserved for future use.

Optional

Reserved for future use.

Interactions

Reserved for future use.

4.2.1.3 Level 3: 1.1.2.5.4 - Guide Resource Usage Records Problem

Table 4.57 Level 3 - 1.1.2.5.4 Guide Resource Usage Records

LEVEL 3 PROCESS MAPPING DETAILS 1.1.2.5.4 Guide Resource Usage Records
Brief Description Relates the usage record to the appropriate service. **Extended Description** The Guide Resource Usage Records process converts/relates the record to the appropriate service. In many cases, this process is performed by a resource such as a network element. **A** The Orga Systems' products SCP and NGCP write CDRs for the appropriate services. This means it is visible in the SCP CDR that a specific voice call has as for example the A/B-Party, Duration, MSC ID, Cell ID, etc. The NGCP writes CDRs for each different service used.

More information can be found in the User or Operating Manuals for these specific products.

(SCP R2.6 OMA, Chapter 4 Processes)
(NGCP R3.3 UMA, Chapter 3 Services)

Explanatory

Reserved for future use.

Mandatory

Reserved for future use.

Optional

Reserved for future use.

Interactions

Reserved for future use.

4.2.1.4 Supporting Evidence References (Works Cited)

NGCP R3.3 UMA	UMA_NGCP_R3.3_V1.0.pdf; User Manual for Next Generation Control Point (NGCP) Release 3.3
SCP R2.6 OMA	OMA_SCP_R2.6_V1.0_(P000).pdf; Operator Manual for Service Control Point (SCP) Release 2.6
GOLD R2.4 PDE	Product Description GOLD R2.4 R1.00.pdf; Product & Feature Description for GOLD Release 2.4
Gold Architecture	POSTER_OPSC_Gold_Architecture_R2.4_V1.0.pdf; GOLD Architecture Diagram Release 2.4
Concept Consolidation	CRE Event Consolidation.pdf; Concept for event consolidation in GOLD RTE

4.2.1.5 Level 2: 1.1.2.5 - Service Guiding & Mediation - Scores

Table 4.58 Level 2: 1.1.2.5 - Service Guiding & Mediation - Scores

Level 2: 1.1.2.5 - Service Guiding & Mediation [3/3]		
Level 3 Process	**Level 4 Process**	**L4/L3 Process Score**
1.1.2.5.1 - Mediate Service Usage Records		**5**
	1.1.2.5.1.1 Validate Service Usage Record	100%
	1.1.2.5.1.2 Normalize Service Usage Record	100%
	1.1.2.5.1.3 Convert Service Usage Record	100%
	1.1.2.5.1.4 Correlate Service Usage Record	100%
	1.1.2.5.1.5 Remove Duplicate Service Usage Record	100%
1.1.2.5.3 - Report Service Usage Records		**5**
1.1.2.5.4 - Guide Resource Usage Records		**5**

5 Information Framework Assessment Overview

5.1 Mapping Technique Employed

The certification scope defines the list of ABEs (Aggregated Business Entities) to be addressed during the assessment. The entities, association classes and dependent entities for each ABE in scope are also included in the assessment.

The mapping technique used, was based on the analysis of the SID model files and addendum specifications for the entities', association classes' in scope and its related attributes. The role of each entity', association class or attribute is then interpreted and mapped into the GOLD information model related element. This will clearly state how the SID model is supported by GOLD.

5.2 Information Framework Assessment - ABE Scope

The diagram in Figure 5.1 illustrates the Information Framework Level 1 ABEs that were presented in scope for the Assessment, and the textual callouts represent the domain areas of the Orga Systems GOLD that were assessed and support the corresponding SID ABEs.

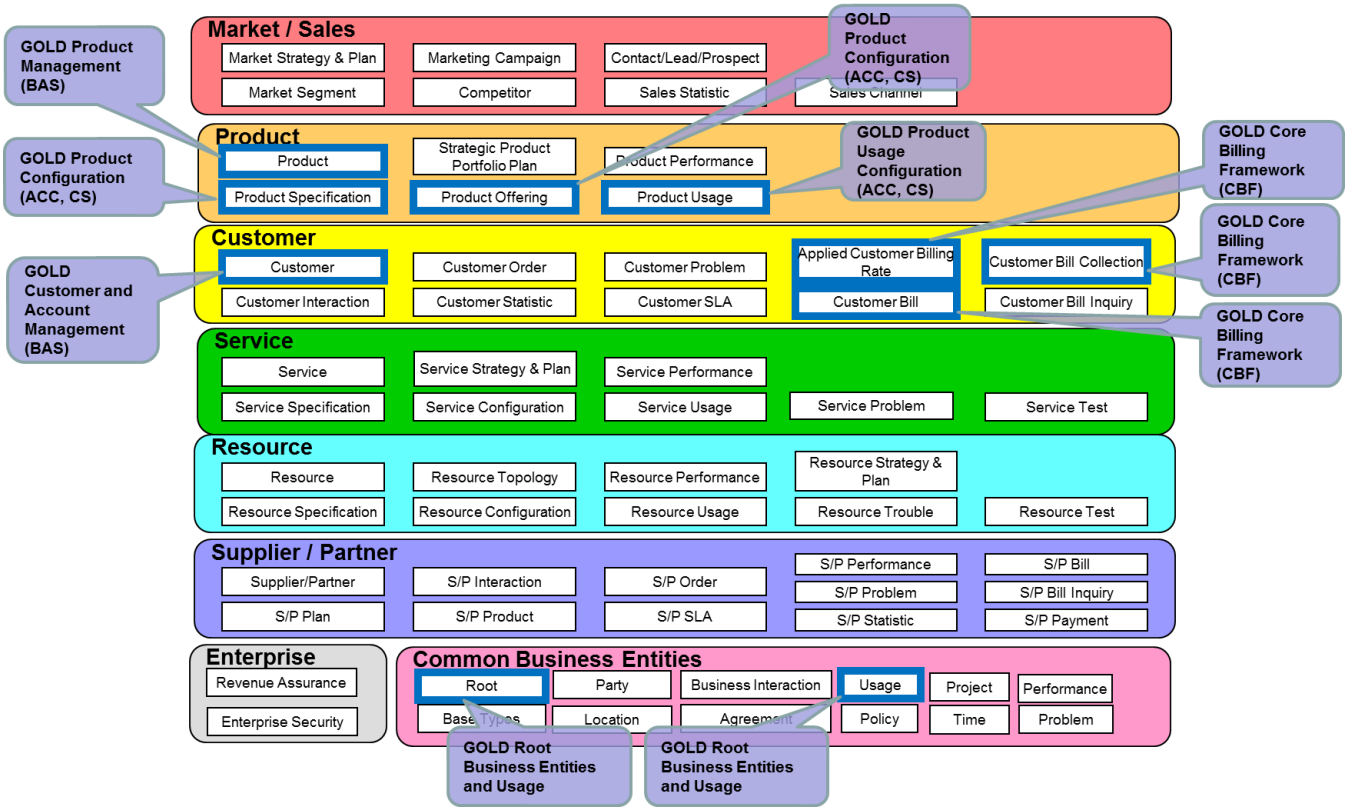

Figure 5.1 - Information Framework: Level 1 ABEs in scope for GOLD R2.4 Assessment

5.3 Product Scope

The diagram in Figure 5.2 represents the Orga Systems GOLD and how it is mapped to the Information Framework Level 1 ABEs that were assessed as part of this Frameworx Conformance Assessment.

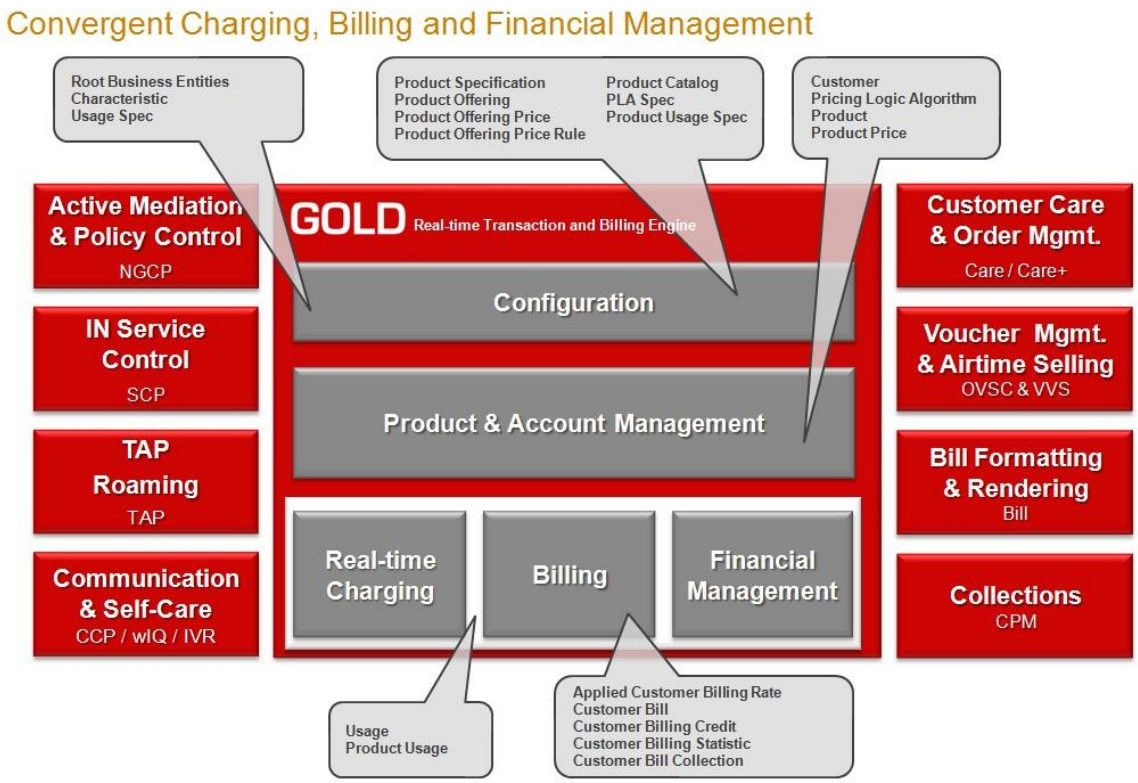

Figure 5.2 - GOLD R2.4 Product Footprint: Product Scope for SID Assessment

6 Frameworx Conformance Result

This section details the Scores awarded to reflect Conformance of the Orga Systems GOLD to the Business Process Framework & Information Framework components of Frameworx 12.

6.1 Business Process Framework – Scoring Rules

The conformance scores granted were based on the following TM Forum scoring rules:

Frameworx 12.0 Conformance Certification (Product/Solution/Implementation)		
Business Process Framework (eTOM) - Conformance Level Descriptions (Level 3 processes)		
Process level	**Conformance Score**	**Qualifier**
Level 1	**Not applicable**	**Conformance Assessment shall not be carried out at this process level - hence Confomance Level shall not be awarded at this level.**
Level 2	**Not applicable**	**A conformance level is not awarded to Level 2 processes in Frameworx 12.0 Assessments. The Certification Report shall highlight the coverage of a Level 2 process submitted in scope for an Assessment in terms of number of Level 3 processes submitted for assessment out of the total number defined for the Level 2 process.**
Level 3	**Score is awarded between 3.1 & 5.**	**The Conformance Score is awarded for each Level 3 processes submitted in scope for the Assessment.** **The Conformance Score awarded can be a value between 3.1 & 5 depending on the level of coverage & conformance to the Level 3 process based on the alignment to the level 3 Implied Tasks as decomposed in the Level 4 process definitions.** *Any manual implementation of the process support shall be noted in the Conformance Report and Detailed Results Report.*

Figure 6.1 - TM Forum Business Process Framework: Conformance Scoring Rules

6.2 Business Process Framework - Conformance Result Summary

The graph in this section provides an overview of the conformance levels granted to the Level 3 Processes presented in scope for the Orga Systems GOLD Assessment. Each Level 3 process was measured using a Business Process Framework (eTOM) conformance score according to level of Conformance – Full Conformance or Partial Conformance as described in section 6.1 Business Process Framework – Scoring Rules.

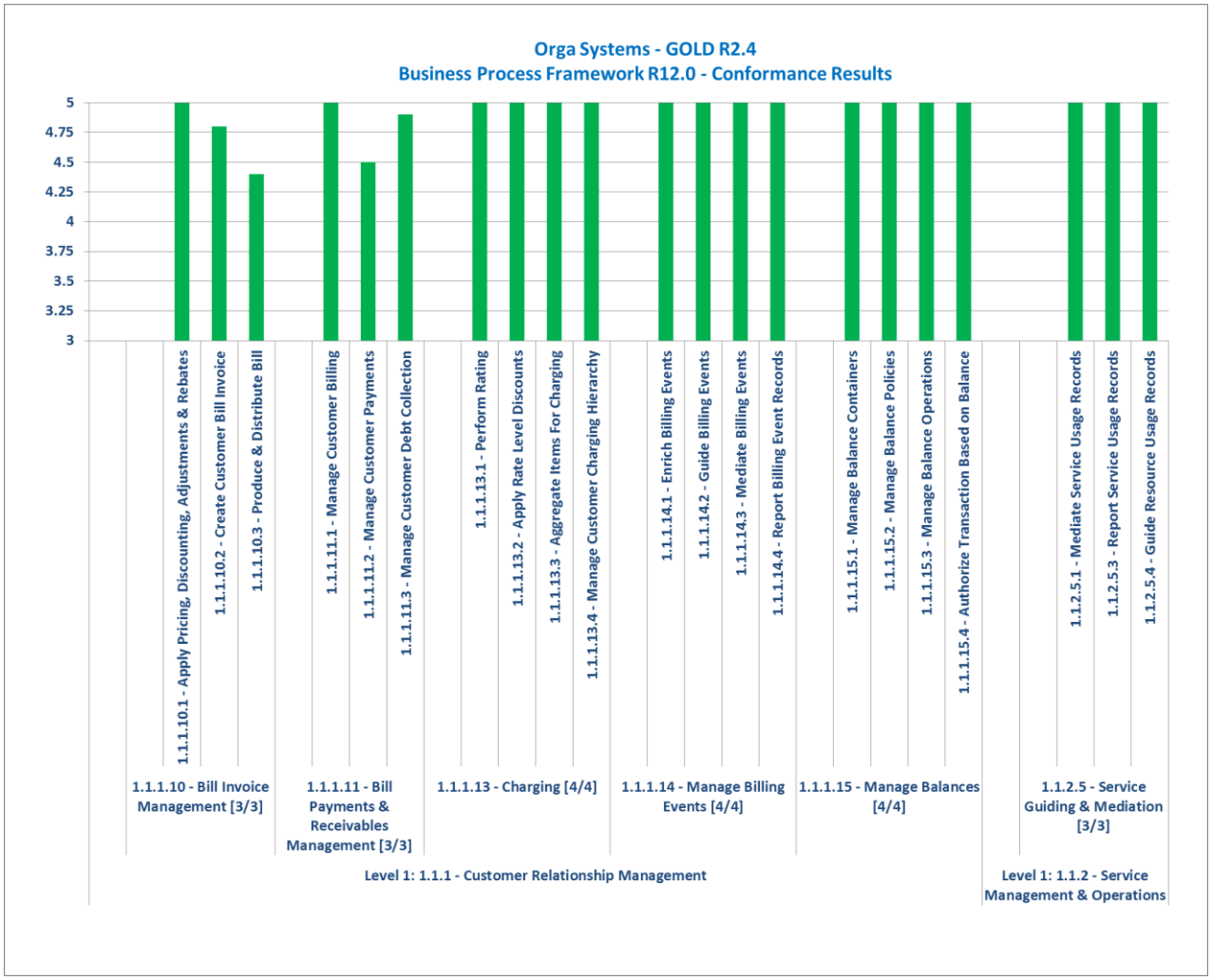

Figure 6.2 – Business Process Framework Conformance Result Summary

6.3 Business Process Framework – Conformance Results Detailed

The following table provides a more detailed breakdown of the scores awarded with some additional commentary.

Table 6.1 - Business Process Framework: Detailed Conformance Result

Orga Systems GOLD R2.4 Business Process Framework (eTOM) Release 12.0 Conformance		
Business Process Framework Process	**Conformance Score**	**Comment**
Level 1: 1.1.1 - Customer Relationship Management	**N/A**	The following Level 2 process elements were submitted in scope for this Level 1 process: 1.1.1.10 - Bill Invoice Management 1.1.1.11 - Bill Payments & Receivables Management 1.1.1.13 - Charging 1.1.1.14 - Manage Billing Events 1.1.1.15 - Manage Balances
Level 2: 1.1.1.10 - Bill Invoice Management	**Scope [3/3]**	The following Level 3 processes were assessed for conformance: 1.1.1.10.1 - Apply Pricing, Discounting, Adjustments & Rebates 1.1.1.10.2 - Create Customer Bill Invoice 1.1.1.10.3 - Produce & Distribute Bill These processes represent the full level 3 process scope (3/3) defined within the **1.1.1.10 - Bill Invoice Management** process.
Level 3: 1.1.1.10.1 - Apply Pricing, Discounting, Adjustments & Rebates	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).
Level 3: 1.1.1.10.2 - Create Customer Bill Invoice	**4.8**	**Partially Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process

		Framework (eTOM) but with some deviations. See Mapping Table for more details.
Level 3: 1.1.1.10.3 - Produce & Distribute Bill	**4.4**	**Partially Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM) but with some deviations. See Mapping Table for more details.
Level 2: 1.1.1.11 - Bill Payments & Receivables Management	**Scope [3/3]**	The following Level 3 processes were assessed for conformance: 1.1.1.11.1 - Manage Customer Billing 1.1.1.11.2 - Manage Customer Payments 1.1.1.11.3 - Manage Customer Debt Collection These processes represent the full level 3 process scope (3/3) defined within the 1.1.1.11 - Bill Payments & Receivables Management.
Level 3: 1.1.1.11.1 - Manage Customer Billing	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).
Level 3: 1.1.1.11.2 - Manage Customer Payments	**4.5**	**Partially Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM) but with some deviations. See Mapping Table for more details.

Level 3: 1.1.1.11.3 - Manage Customer Debt Collection	**4.9**	**Partially Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM) but with some deviations. See Mapping Table for more details.
Level 2: 1.1.1.13 - Charging	**Scope [4/4]**	The following Level 3 processes were assessed for conformance: 1.1.1.13.1 - Perform Rating 1.1.1.13.2 - Apply Rate Level Discounts 1.1.1.13.3 - Aggregate Items For Charging 1.1.1.13.4 - Manage Customer Charging Hierarchy These processes represent the full level 3 process scope (4/4) defined within the 1.1.1.13 – Charging process.
Level 3: 1.1.1.13.1 - Perform Rating	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).
Level 3: 1.1.1.13.2 - Apply Rate Level Discounts	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).
Level 3: 1.1.1.13.3 - Aggregate Items For Charging	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).

Level 3: 1.1.1.13.4 - Manage Customer Charging Hierarchy	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).
Level 2: 1.1.1.14 - Manage Billing Events	**Scope [4/4]**	The following Level 3 processes were assessed for conformance: 1.1.1.14.1 - Enrich Billing Events 1.1.1.14.2 - Guide Billing Events 1.1.1.14.3 - Mediate Billing Events 1.1.1.14.4 - Report Billing Event Records These processes represent the full level 3 process scope (4/4) defined within the 1.1.1.14 - Manage Billing Events process.
Level 3: 1.1.1.14.1 - Enrich Billing Events	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).
Level 3: 1.1.1.14.2 - Guide Billing Events	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).
Level 3: 1.1.1.14.3 - Mediate Billing Events	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).

Level 3: 1.1.1.14.4 - Report Billing Event Records	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).
Level 2: 1.1.1.15 - Manage Balances	**Scope [4/4]**	The following Level 3 processes were assessed for conformance: 1.1.1.15.1 - Manage Balance Containers 1.1.1.15.2 - Manage Balance Policies 1.1.1.15.3 - Manage Balance Operations 1.1.1.15.4 - Authorize Transaction Based on Balance These processes represent the full level 3 process scope (4/4) defined within the 1.1.1.15 - Manage Balances process.
Level 3: 1.1.1.15.1 - Manage Balance Containers	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).
Level 3: 1.1.1.15.2 - Manage Balance Policies	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).
Level 3: 1.1.1.15.3 - Manage Balance Operations	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).

Level 3: 1.1.1.15.4 - Authorize Transaction Based on Balance	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).
Level 2: 1.1.2.5 - Service Guiding & Mediation	**Scope [4/4]**	The following Level 3 processes were assessed for conformance: 1.1.2.5.1 - Mediate Service Usage Records 1.1.2.5.3 - Report Service Usage Records 1.1.2.5.4 - Guide Resource Usage Records These processes represent the full level 3 process scope (4/4) defined within the 1.1.2.5 - Service Guiding & Mediation process.
Level 3: 1.1.2.5.1 - Mediate Service Usage Records	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).
Level 3: 1.1.2.5.3 - Report Service Usage Records	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).
Level 3: 1.1.2.5.4 - Guide Resource Usage Records	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).

Level 3: 1.1.1.15.4 - Authorize Transaction Based on Balance	**5**	**Fully Conformant** Supporting evidence and documentation submitted for the assessment of this level 3 process fulfilled alignment criteria with the standard Business Process Framework (eTOM).

6.4 Information Framework – Scoring Rules

The conformance scores granted were based on the following TM Forum scoring rules:

Frameworx 12.0 Conformance Certification (Product/Solution/Implementation)	
Information Framework (SID) - Conformance Score Descriptions	
Conformance Score	**Qualifier**
Non Conformance [Score = 1]	**The content of the model is compatible with a subset of the Information Framework (SID) ABEs that define its domain coverage. This provides two interacting components/solutions with a common vocabulary and model structure. The subset represents the scope of the model, expressed in Information Framework (SID) domains**
Non Conformance [Score = 2]	**The model has passed level 1 conformance and the content of the ABE, part of the domain coverage and defined in the model, contains the ABE's core business entity or entities. A core business entity is an entity upon which other entities within the ABE are dependent. e.g. Service in the Service ABE. A core entity is also an entity whose**
Very Low Conformance [2.0 < Score <= 3.0]	**The model has passed level 2 conformance and *a percentage of the required attributes of the ABE's core entity or entities are defined in the model.**
Low Conformance [3.0 < Score <= 4.0]	**The model has passed level 3 conformance and *a percentage of the dependent entities within the ABE are defined in the model. A dependent entity is one whose instances are dependent on an instance of a core entity. For example, a ServiceCharacteristic instance within the Service ABE is dependent upon an instance of the Service entity.**
Medium Conformance [4.0 < Score <= 5.0]	**The model has passed level 4 conformance and *a percentage of the required attributes of the ABE's dependent entities are defined in the model.**
High Conformance [5.0 < Score <= 6.0]	**The model has passed level 5 conformance and *a percentage of all attributes of the ABE's core entities are defined in the model.**
Very High Conformance [6.0 < Score < 7.0]	**The model has passed level 6 conformance and *a percentage of all attributes of the ABE's dependent entities are defined in the model.**
Full Conformance [Score = 7.0]	**The model has achieved Level 7 conformance (Full Conformance) and all attributes of the ABE's core & dependent entities are defined in the model.**
**** For each level, according to what is required, a value is calculated based on the percentage of entities/attributes supported - as appropriate. This will result in a decimal figure (rounded to one decimal place).***	

Figure 6.3 - TM Forum Information Framework: Conformance Scoring Rules

Notes:

*A **core business entity** is an entity upon which other entities within the ABE are dependent. For example, Service in the Service ABE. A model should strive to attain as high a level of Information Framework (SID) conformance as possible. A core entity is also an entity whose absence in the ABE would make the ABE incomplete.*

*A **dependent entity** is one whose instances are dependent on an instance of a core entity. For example, a ServiceCharacteristic instance within the Service ABE is dependent upon an instance of the Service entity.*

6.5 Information Framework – Conformance Result Summary

The following graph provides an overview of the conformance levels granted to the ABEs presented in scope for the Orga Systems GOLD Information Framework Assessment. Each ABE was measured using an Information Framework (SID) conformance scale of 1–7 as described in section 6.4.

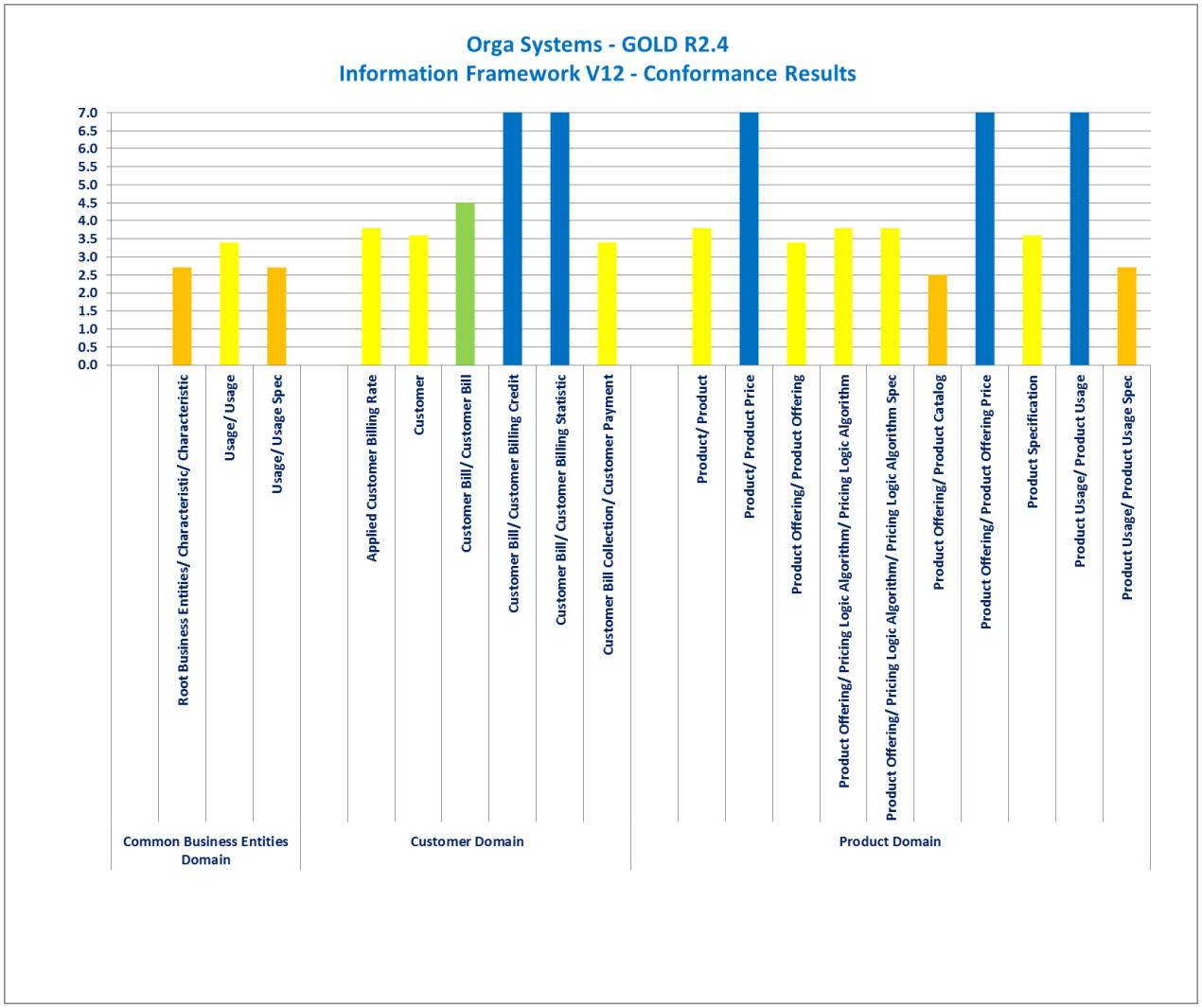

Figure 6.4 - Information Framework: Conformance Result Summary

6.6 Information Framework – Conformance Result Detailed

The following table provides a more detailed breakdown of the scores awarded with some additional commentary.

Table 6.2 - Information Framework: Detailed Conformance Result

Orga Systems GOLD V2.4 Information Framework (SID) Release 12.0 Conformance		
ABE	**Conformance Score**	**Comment**
Common Business Entities Domain		
Root Business Entities/ Characteristic/ Characteristic	**2.7**	Core entity and 70% of required attributes supported.
Usage/ Usage	**3.4**	Core entity, required attributes, 40% of dependent entities supported.
Usage/ Usage Spec	**2.7**	Core entity and 70% of required attributes supported.
Customer Domain		
Customer	**3.6**	Core entity, required attributes, 60% of dependent entities supported.
Applied Customer Billing Rate	**3.8**	Core entity, required attributes, 80% of dependent entities supported.
Customer Bill/ Customer Bill	**4.5**	Core entity, required attributes, dependent entities, 50% of required attributes of dependent entities supported.
Customer Bill/ Customer Billing Credit	**7**	Core entity, required attributes, dependent entities, required attributes of dependent entities, all attributes of the core entity, all attributes of dependent entities supported.
Customer Bill/ Customer Billing Statistic	**7**	Core entity, required attributes, dependent entities, required attributes of dependent entities, all attributes of the core entity, all attributes of dependent entities supported.
Customer Bill Collection/ Customer Payment	**3.4**	Core entity, required attributes, 40% of dependent entities supported.
Product Domain		

Product/ Product	**3.8**	Core entity, required attributes, 80% of dependent entities supported.
Product/ Product Price	**7**	Core entity, required attributes, dependent entities, required attributes of dependent entities, all attributes of the core entity, all attributes of dependent entities supported.
Product Offering/ Product Offering	**3.4**	Core entity, required attributes, 40% of dependent entities supported.
Product Offering/ Pricing Logic Algorithm/ Pricing Logic Algorithm	**3.8**	Core entity, required attributes, 80% of dependent entities supported.
Product Offering/ Pricing Logic Algorithm/ Pricing Logic Algorithm Spec	**3.8**	Core entity, required attributes, 80% of dependent entities supported.
Product Offering/ Product Catalog	**2.5**	Core entity and 50% of required attributes supported.
Product Offering/ Product Offering Price	**7**	Core entity, required attributes, dependent entities, required attributes of dependent entities, all attributes of the core entity, all attributes of dependent entities supported.
Product Specification	**3.6**	Core entity, required attributes, 60% of dependent entities supported.
Product Usage/ Product Usage	**7**	Core entity, required attributes, dependent entities, required attributes of dependent entities, all attributes of the core entity, all attributes of dependent entities supported.
Product Usage/ Product Usage Spec	**2.7**	Core entity and 70% of required attributes supported.